

SERVICE INSTRUCTIONS

Rheem Stellar

TM009



Revision: D

Published: September 07



850330
850360

CONTENTS

SAFETY WARNING	3
INTRODUCTION	3
WATER HEATER MODEL IDENTIFICATION	3
OPERATION	3
SPECIFICATIONS	4
BALANCED FLUE PRINCIPAL	4
PREVENTATIVE MAINTENANCE	5
PRODUCT CHANGES	5
LIGHTING INSTRUCTIONS	7
COMPONENTS AND THEIR FUNCTION	8
COMMON FAULTS	9
HIGH EFFICIENCY WATER HEATERS	11
FAULT FINDING	12
FAULT FINDING – CHART 1	13
FAULT FINDING – CHART 1.1	14
FAULT FINDING – CHART 1.2	15
FAULT FINDING – CHART 2	16
FAULT FINDING – TESTS 1-4	17
FAULT FINDING – TESTS 5-7	18
FAULT FINDING – CHART 3	19
FAULT FINDING – CHART 4	20
FAULT FINDING – CHART 5	21
FAULT FINDING – CHART 5.1 & 5.2	22
FAULT FINDING – CHART 6	23
FAULT FINDING – CHART 7	24
COMPONENT REPLACEMENT	25
Gas Control Only (Procedure 1)	25
Gas Control And Burner Assembly Removal (Procedure 2)	25
Thermocouple (Procedure 3)	25
Pilot Assembly (Procedure 4)	26
Pilot Injector (Procedure 5)	26
Main Burner Injector (Procedure 6)	26
Anodes (Procedure 7)	27
Cleaning Or Replacing Flue Baffle (Procedure 8)	27
Flue Terminal Assembly (Procedure 9)	27
EXPLODED VIEW (MODELS MANUFACTURED UP TO 30/08/02)	28
REPLACEMENT PARTS LIST (MODELS MANUFACTURED UP TO 30/08/02)	29
EXPLODED VIEW (MODELS MANUFACTURED AFTER 30/08/02)	30
REPLACEMENT PARTS LIST (MODELS MANUFACTURED AFTER 30/08/02)	31
BURNER ASSEMBLY EXPLODED VIEW	32
REPLACEMENT PARTS LIST	32
BURNER EXPLODED VIEW	33
REPLACEMENT PARTS LIST	33
GAS TYPE CONVERSION PROCEDURE	34
RHEEM WATER HEATER WARRANTY (EXCLUDING SOLAR) - (AUSTRALIA AND NEW ZEALAND ONLY)	35
DOCUMENT REVISION HISTORY	36

SAFETY WARNING

The purpose of these instructions is to provide sufficient information to allow a person with the skills required by the Regulatory Authorities to carry out effective repairs to a Rheem Gas Water Heater in the minimum of time.

Safety precautions or areas where extra care should be observed when conducting tests outlined in this service manual are indicated by print in *bold italics* and/or a warning symbol. Take care to observe the recommended procedure.



When conducting repairs to a gas appliance the gas train including injector sizes must not be altered or modified in any way.

INTRODUCTION

The information provided in these service instructions is based on the water heater being installed in accordance with AS 5601/AG 601 and the Installation Instructions provided with each water heater.

Should you require further technical advice on a Rheem Stellar Water Heater, contact your nearest Rheem Service Department where all genuine replacement parts are also available.

WATER HEATER MODEL IDENTIFICATION

The identification numbers are designed to convey detailed information about the heater to which it is attached. The model number consists of 7 digits and 1 letter

	850	330	N	0
Cylinder Warranty 8 -10 year				
First Hour Capacity 330 litres 360 litres				
Gas Type N - Natural Gas P - Propane Gas				
No Reference System Requirement				

The model number, serial number and date of manufacture should be quoted in all correspondence.

OPERATION

When the gas control knob is depressed in the pilot position, it allows gas to flow to the pilot head where it can be ignited by a spark from the piezo igniter.

The pilot flame heats the thermocouple creating an electrical current to energise the magnetic safety valve and hold it in the open position, allowing the pilot to remain alight when the gas control knob is released.

The gas control knob can then be rotated anticlockwise, by depressing slightly, to supply gas to the main burner. The main burner is lit via a cross light action between the pilot and the gas emanating from the main burner.

Position 7 on the gas control knob will heat the water to approximately 66°C. Each number on the gas control represents a water temperature change of approximately 6°C.

The water temperature is maintained by means of a liquid contained in the sensing bulb expanding in the capillary tube and operating a bellows located in the gas control body.

As the water temperature increases the bellows expands and acts on the valve seat by means of a lever. When the required set temperature is reached the main gas way is closed and the main burner is extinguished.

SPECIFICATIONS

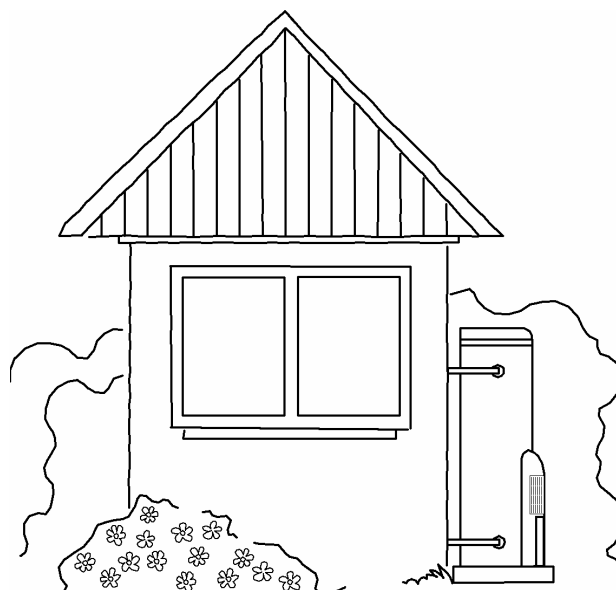
		Model	
		850330	850360
Max Water Supply Pressure (kPa)	With ECV	960	960
	Without ECV	1120	1120
Min Gas Supply Pressure - Natural Gas (kPa)		1.13	1.13
Minimum Gas Supply Pressure -LP Gas (kPa)		2.75	2.75
Maximum Gas Supply Pressure (kPa)		3.5	3.5
Maximum Thermostat Setting (°C)		66	66
ECO Cut Out Temperature (°C)		82+/-3	82+/- 3
Storage Capacity (litres)		130	160
Hourly Recovery (45°C rise)		200	200
Anodes	Quantity	2	2
	Length (mm)	1153	1400
Flue Baffle	Blades	20	22
	Length (mm)	1214	1315
Water Connections	Diameter	RP ³ / ₄ /20	RP ³ / ₄ /20
T&PR Valve	Diameter	RP ¹ / ₂ /15	RP ¹ / ₂ /15
	Rating (kPa)	1400	1400
Gas Connection		RP ¹ / ₂ /15	RP ¹ / ₂ /15
Pilot injector (mm)	LP gas	0.18	0.18
	Natural gas	0.27	0.27
Gas Control	Std pilot	LP gas only	LP gas only
	Regulated Pilot	Natural gas	Natural gas
Burner Injector (mm)	LP gas	1.60	1.60
	Natural Gas	2.90	2.90
Thermal Input (MJ)		42	42

BALANCED FLUE PRINCIPAL

In practice it is almost impossible to achieve exact balance between the pressures on the air inlet and flue outlet of a balanced flue terminal. In order to avoid the possibility of reverse fluing the flue terminal design is always biased to provide slightly higher pressure on the air inlet.

The flue terminal is designed and tested to operate with winds directed at the side or front of the water heater. If the wind comes from the behind the water heater, the operation of the flue terminal is unpredictable and may result in problems such as flame roll out from the combustion chamber, sooting of the primary flue and stainless steel super flue and/or pilot outage.

For this reason the water heater must be installed against an external wall.



PREVENTATIVE MAINTENANCE

TO BE DONE BY QUALIFIED PERSONS

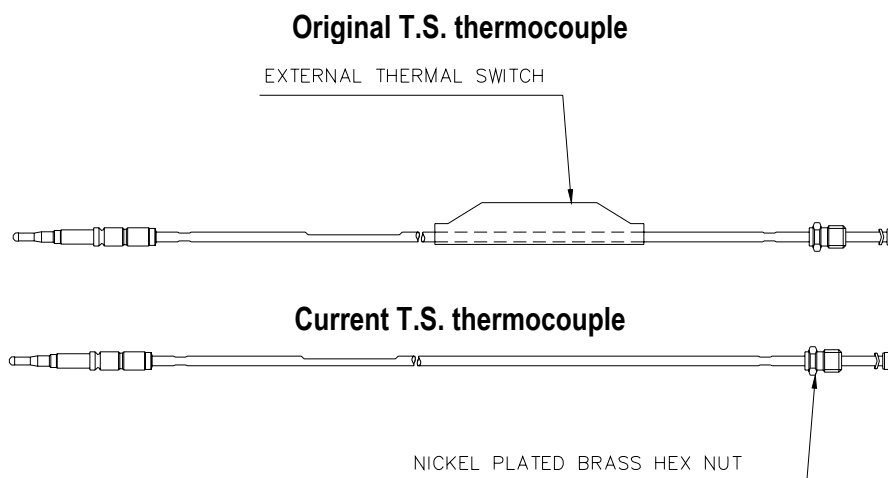
It is suggested for peak performance that the water heater be serviced annually.

1. Check for discharge from the T&PR valve. Whilst the burner is off there should be no discharge of water. When the burner is operating, a small discharge of water may be evident. Operate the valve-easing lever to ensure the valve opens and resets properly. Always open and close the valve gently. The T&PR valve should be replaced at 5 yearly intervals.
2. Check that the pilot light is burning with a small blue flame. Remove and clean pilot burner if there is a tendency for yellowing of the flame. Ensure the pilot ignites the main burner with no delayed ignition. Appliances operating on LP gas may exhibit a slightly yellow pilot flame; this is a normal condition.
3. Check the main burner pressure is as stated on the Rating Plate. Pressure within 20% is acceptable. Remember to replace test point screw.
4. Check main burner flame to ensure all parts ignite readily and that the flame is blue with little or no yellowing of the tips. If necessary adjust primary air shutter to eliminate yellowing without inducing a harsh noisy blue flame.
5. Check operation of piezo igniter. The pilot should light after 2 or 3 operations of the piezo, if not, check for correct spark gap, burnt electrode or cracked ceramic insulator.
6. Check operation of flame failure magnetic valve. The magnetic valve should be held open within one minute by the electric current generated by the thermocouple. If not check the output of the thermocouple.
7. Check for signs of excessive corrosion on the jacket or inside combustion chamber.
8. Warn customer of the danger of using flammable materials or aerosol spray packs near the water heater. Aerosols and harsh chemicals can cause premature failure of water heater components.

PRODUCT CHANGES

In June 2001 the entry for the gas supply pipe in the flue terminal was moved up to allow a straight connection to the gas valve. The modified flue terminal will be the only type carried as a spare part. When replacing the flue terminal with the old style gas connection it will be necessary to alter the pipe work to the gas valve before the replacement flue terminal can be fitted. The replacement part number remains unchanged.

Thermocouple: The original T.S thermocouple had the thermal fuse mounted externally on the outer sheath of the thermocouple encased in heat shrink (see diagram below). The current style of T.S. thermocouple has the thermal fuse integrated inside the outer sheath of the thermocouple. A nickel coloured nut at the gas control end of the thermocouple identifies this type of T.S. thermocouple. Non-T.S. thermocouples have a brass coloured nut.

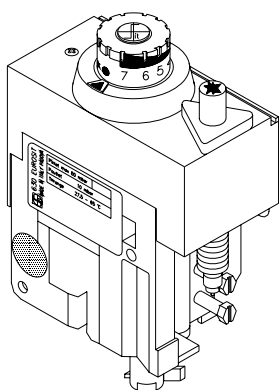


Gas Control

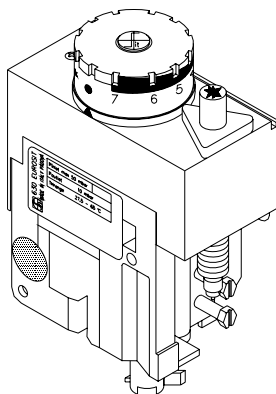
In January 2001 a new generation Eurosit gas control was introduced to Stellar 850330 and 850360.

The replacement gas control features a more positive interlock between the pilot and main burner position and, on Natural Gas types, an internal regulated pilot gas supply. The new gas control can be easily identified by the larger control knob (see diagram below).

The Eurosit gas control with interlock will now be the only model supplied as a replacement from spare parts for Natural and LP gas types.



Old Style



New Style

NOTE:

When replacing an older style Eurosit gas control with the new generation Eurosit it will be necessary to make the following changes in addition to fitting the gas control:

Replace the lighting instructions

Outdoor models - lighting instruction part number 121024

The replacement lighting instructions have an adhesive back and have been designed to be placed over the existing lighting instructions

Jacket

In August 2002 the condensate tray and condensate drain were redesigned, this required a change to the jacket. This change was introduced on the 30/8/2002, models produced after this date have a different jacket and condensate drain.

Pilot Injector

In February 2003 the pilot injector size was increased in both Natural and LP gas models to that used in square and round gas models.

	Natural Gas	LP Gas
Old Injector	0.24 (890180)	0.14 (890182)
New Injector	0.27 (890181)	0.18 (890197)

Pilot Shield

In March 2003 a pilot shield (part number 143902) was introduced to overcome problems with pilot outage due to condensation interfering with the thermocouple and pilot flame. The shield can be retrofitted to all models.

FOR YOUR SAFETY READ BEFORE LIGHTING



WARNING

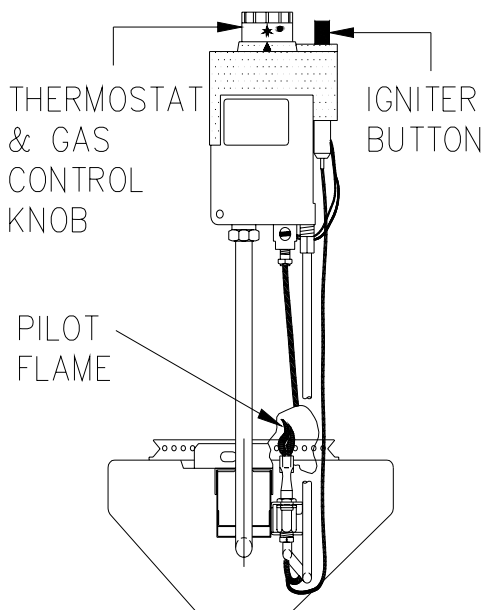


Gas water heaters are designed to operate reliably and safely as long as the operating instructions are followed **EXACTLY**. You must comply with these lighting instructions at every stage

- A. This water heater is equipped with an igniter button that lights the pilot. When lighting the pilot follow these instructions exactly.
- B. **BEFORE LIGHTING** ensure there is no smell of gas around or in the vicinity of the water heater and the burner opening. Be sure to smell next to ground level as some gases can settle there.
- C. **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light the appliance
 - If the gas smell is throughout the area turn the gas control knob clockwise to the “●”(off)
- D. Use only your hand to turn the gas control knob, never use tools. If the control knob will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may cause a fire or explosion.
- E. Do not use this water heater if it has obviously been damaged. Call a qualified service technician.

LIGHTING INSTRUCTIONS

1. STOP. READ THE SAFETY INFORMATION ABOVE.
2. TURN THE GAS CONTROL KNOB CLOCKWISE TO THE “●” (OFF) POSITION.
3. WAIT 5 MINUTES SO ANY BUILD UP OF UNBURNT GAS CAN ESCAPE. IF YOU THEN SMELL GAS, STOP. FOLLOW “C” IN THE SAFETY INFORMATION ABOVE. IF YOU DO NOT SMELL GAS, PROCEED TO STEP 4.



4. Turn the gas control knob to the “ ”(pilot) position.
5. Depress the knob fully (until “ ” disappears below housing) and after thirty (30) seconds, whilst keeping the gas control knob depressed, repeatedly press the igniter button (for up to 40 seconds) until the pilot flame ignites.

WARNING: Keep your face clear of the combustion chamber opening while pressing the igniter.

NOTE: It is not possible to depress the knob fully if the gas control has activated its safety shut off feature. In the case, wait 60 seconds for the gas control to reset.

6. Keep the knob depressed for twenty (20) seconds after the pilot flame lights.
7. Release the knob and check if the pilot is alight. The pilot can be checked by looking through the large opening below the gas control.
8. If the pilot has failed to or has not remained alight, turn the gas control knob to the “●”(off) position. Wait 5 minutes for the escape of unburnt gas and then begin again at step 4

NOTE: Failure to wait 5 minutes may result in a fire or explosion.

9. When the pilot flame remains alight with the gas control knob released, turn the knob anticlockwise to one of the number settings. A setting of “6” is recommended; this will provide a water temperature of about 60°C.
10. Turn the knob to a higher number for higher water temperatures or a lower number for lower water temperatures.
11. Replace the access panel.
12. If the burner does not light at the selected setting, the water may already be at the selected temperature.

TO TURN OFF GAS TO APPLIANCE

1. TURN THE GAS CONTROL KNOB TO THE “●” (OFF) POSITION.
2. TURN OFF THE GAS ISOLATION VALVE.

COMPONENTS AND THEIR FUNCTION

EUROSIT 630 GAS CONTROL

The gas control is a multi functional single knob gas control. It is gas type specific and designed for either Natural Gas or LPG. *The control is factory set and not field serviceable or gas type convertible.*

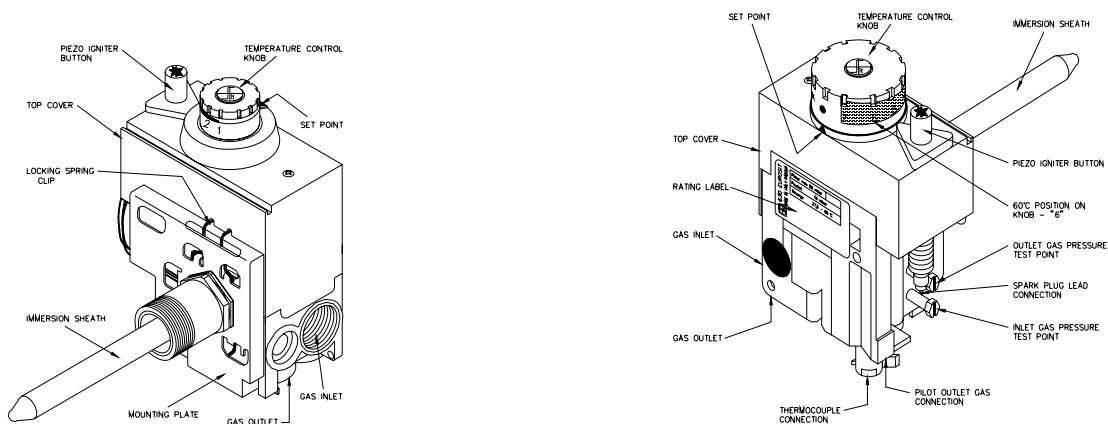
The gas control is manufactured without the temperature sensor and over temperature switch (ECO) enclosed in a sheath.

The sheath is a separate item and is screwed into the cylinder during manufacture. A slot in the head of the sheath is aligned in the horizontal position to allow the snap-on bracket at the rear of the gas control to be located positively.

This design allows the gas control to be replaced without the need to drain the water heater.

Note: The only time the sheath needs to be removed is in the event of a leak developing at the cylinder connection or in the sheath itself. *In this case the water supply needs to be isolated and pressure relieved from the cylinder.*

IN THE EVENT OF A SHEATH REPLACEMENT, USE A 27mm AF SOCKET TO PREVENT DAMAGE TO THE SLOT. APPLY THREAD SEALING TAPE AND TIGHTEN SO THAT THE SLOT IS HORIZONTAL WITH A MINIMUM OF 2 THREADS OR A MAXIMUM OF 4 THREADS PROTRUDING FROM THE CYLINDER FITTING.



THERMOCOUPLE

A device that generates a small electric current when heated. Thermocouples are available in T.S (thermal switch) and non-T.S. types. The current generated by the thermocouple is used to hold a thermo-magnetic valve, fitted in the gas control, open.

The pilot assembly is designed to ensure that the T.S. (thermal switch) thermocouple manufactured by S.I.T. specifically for this product is the only type used as a replacement.

The use of a T.S. thermocouple is to provide a safety shutdown in the event of a blockage in the combustion chamber or flue lining.

IMPORTANT: *If replacing an open circuit T.S. thermocouple, it is essential to investigate the cause of failure. Possible causes include; incorrect installation of the water heater, i.e. Incorrect distance from corners of walls or the back of the water heater not against a wall; Exhaust fans or air conditioners close by; Blockage of the condensate drain between the condensate tray around the cylinder and the outlet in the jacket.*

OVER TEMPERATURE ENERGY CUTOUT (E.C.O.)

A temperature-sensing device in combination with the gas control that automatically cuts off the gas supply to prevent excessive water temperature occurring. This device will reset automatically once temperatures have fallen to a safe level allowing the pilot to be relit. **DETERMINE CAUSE OF OPERATION.**

MAGNETIC VALVE

A solenoid type gas isolating valve held in the open position by a small electric current generated by the thermocouple. This valve will completely isolate the supply of gas to the burner in the event of a pilot flame failure.

THERMAL SWITCH

A one-shot safety device mounted in the thermocouple near the gas control that senses excessive heat outside the combustion chamber. This device cannot be reset.

INLET DIFFUSER


A device installed in the cold water inlet of the water heater to help control temperature stratification within the cylinder.

ANODE (SACRIFICIAL)

A metal alloy electrode that, by galvanic action, protects the inner cylinder from corrosion.

TEMPERATURE AND PRESSURE RELIEF VALVE (T&PR)

A valve designed to provide automatic relief by discharging water in case of excessive temperature, pressure or both.

 **Never fit a T&PR Valve with a pressure rating greater than that indicated on the product rating label.**

DELIVERY TUBE (DIP TUBE)

A polypropylene tube fitted inside the water heater cylinder to conduct water from the highest point to the outlet connection. It also acts as a fitting liner.

FLUE BAFFLE

A baffle inserted into the water heater flue tube that slows the passage of flue gases to ensure maximum heat transfer to the stored water.

COMMON FAULTS

When a complaint is lodged about the performance of a hot water system there are a number of causes that should be checked and eliminated. In an attempt to pinpoint the most likely cause it is important to discuss with the customer their reasons for the complaint, the duration of the problem, any change in circumstances or usage and recent weather conditions.

This information in conjunction with the following listed common complaints will assist you in locating the most likely cause. All procedures assume there is water flowing through the water heater.

Excessive hot water usage

The complaints of insufficient hot water and no hot water can on many occasions be attributed to hot water usage exceeding the capacity of the water heater to provide hot water.

When first attending a call of this nature it is essential to establish the probable hot water usage by querying the usage habits of the household and compare this with the potential delivery of the model water heater installed. It can then be established if the usage is within or outside the capacity of the model. The areas to look at for excessive usage are:

1. Automatic washing machines.
2. Showers exceeding 11 litres/minute for mixed water and 5 minutes in duration.
3. Two or more showers operating at the same time.
4. Change of occupancy or number of persons increased.
5. High water pressure area. (Excessive T&PR discharge)
6. Plumbing leaks

Discoloured water

1. This may be the result of discoloured water entering from the cold water mains. Check if the cold water is also discoloured.
2. Brown coloured water will generally indicate that the anode has been depleted or the water heater is near the end of its useful life.
3. Milky coloured water is generally air in suspension and will disperse of its own accord. In very hard water areas where anode gassing occurs, milky water may be evident. The use of a blue anode should overcome this problem.

Water hammer

A water heater will not cause water hammer, however valves associated with the water heater may be the source of the problem i.e. cold-water stopcock, non-return valve, T&PR valve or relief valve.

Most water hammer problems are associated with plumbing, hot and cold, or appliances i.e. solenoid valves, ball cocks, loose pipes, sharp angles in pipe work, faulty or worn valve parts or neighbouring equipment.

High water pressure areas will have more complaints of this nature and the use of a pressure-limiting valve (PLV) to reduce the household cold-water pressure will usually solve most problems.

Hot water plumbing leaks

If hot water has not been used for a period of time, feeling the temperature of the hot water line may give an indication of water flow if the pipe is warm. The method of checking for plumbing leaks is:

1. Turn off the stopcock on the cold water supply to the water heater.
2. Open a hot tap to ensure the flow of water stops. This will confirm the stopcock is operating correctly.
3. Turn off the hot tap.
4. Turn on the stopcock to make up the water pressure in the cylinder, and then turn the stopcock off again.
5. Wait approximately 5 minutes then do either of the following:
 - a. With your ear close to the stopcock turn it on slightly and listen for any water passing. If there are no leaks, water should not pass.
 - b. Open a hot tap while listening for any pressure release. If there is a pressure release there will be no leaks in the plumbing system.

Mixing or crossed connections

If an automatic dishwasher, washing machine, flick mixer tap, tempering valve or thermostatic mixing valve is installed there is always the possibility that the cold water could mix with the hot water through a faulty or incorrectly installed valve. This is referred to as a cross connection.

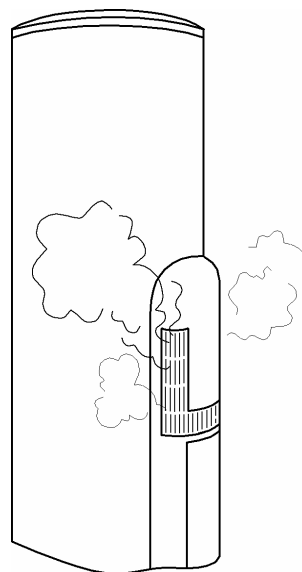
The complaints of insufficient hot water, water too cold or excessive discharge from the T&PR valve may be attributed to a cross connection. The method of checking for a cross connection is:

1. Turn off the stopcock on the cold water supply to the water heater.
2. Open a hot tap. If water flow is persistent and cold a cross connection exists.

When the water heater is first lit, or after a large usage of hot water, condensation may form on the burner and flue terminal.

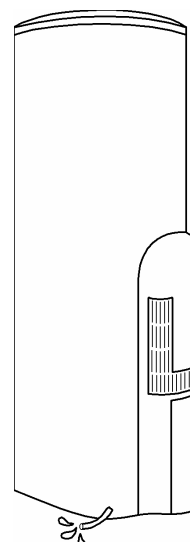
This is quite normal, especially in winter months, and will dry off as the water is heated.

NOTE: During heating cycles it is not unusual to see water vapour clouds streaming from the flue terminal. This is normal operation of the water heater.



The plastic drain near the bottom left-hand side of the water heater will drip water during the heating cycle. It is possible for SEVERAL LITRES a day of condensation to discharge from the drain especially in cool conditions.

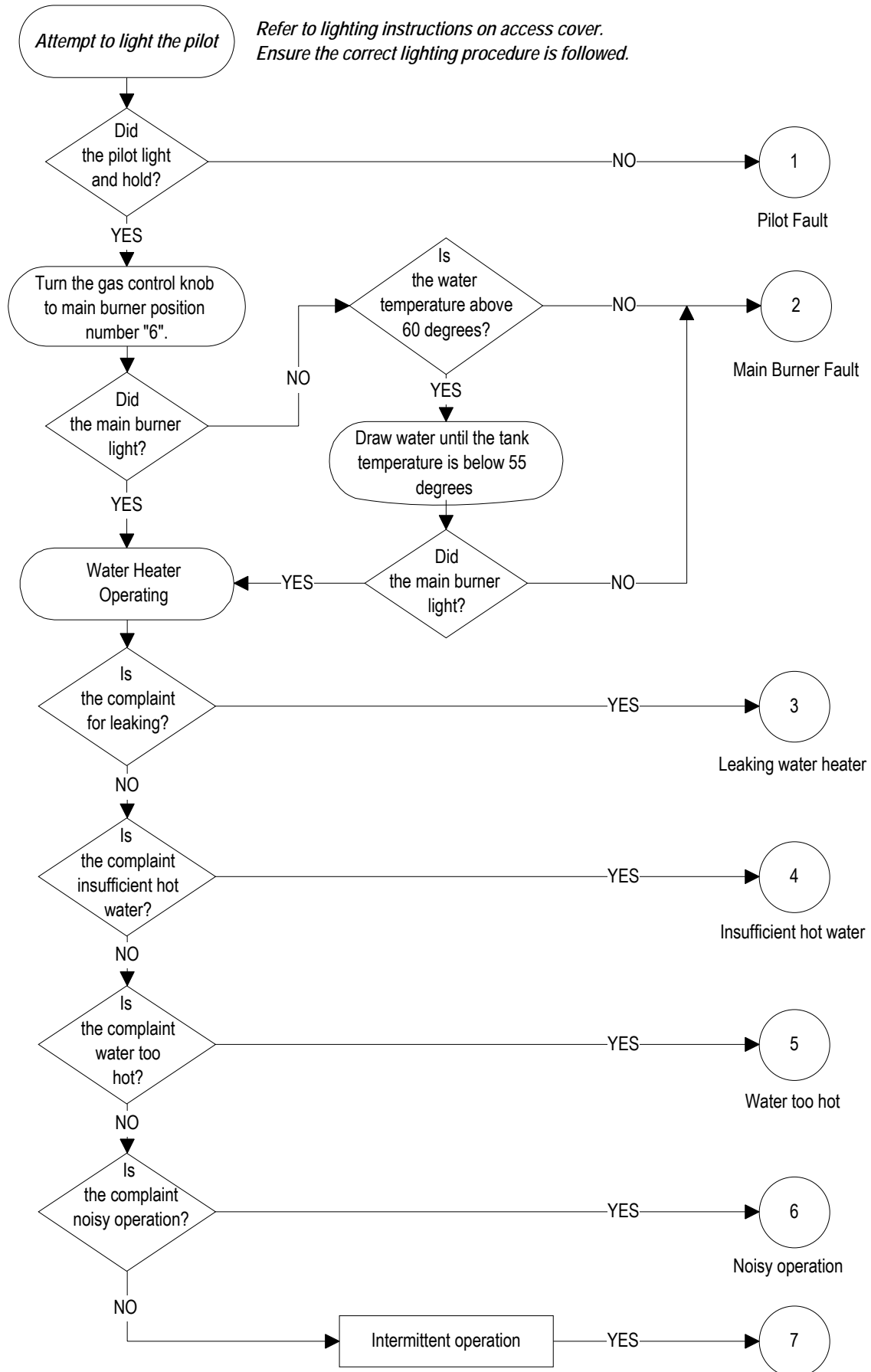
This water **is not** from the mains supply but is condensation caused by the efficient operation of the water heater.



FAULT FINDING CHARTS

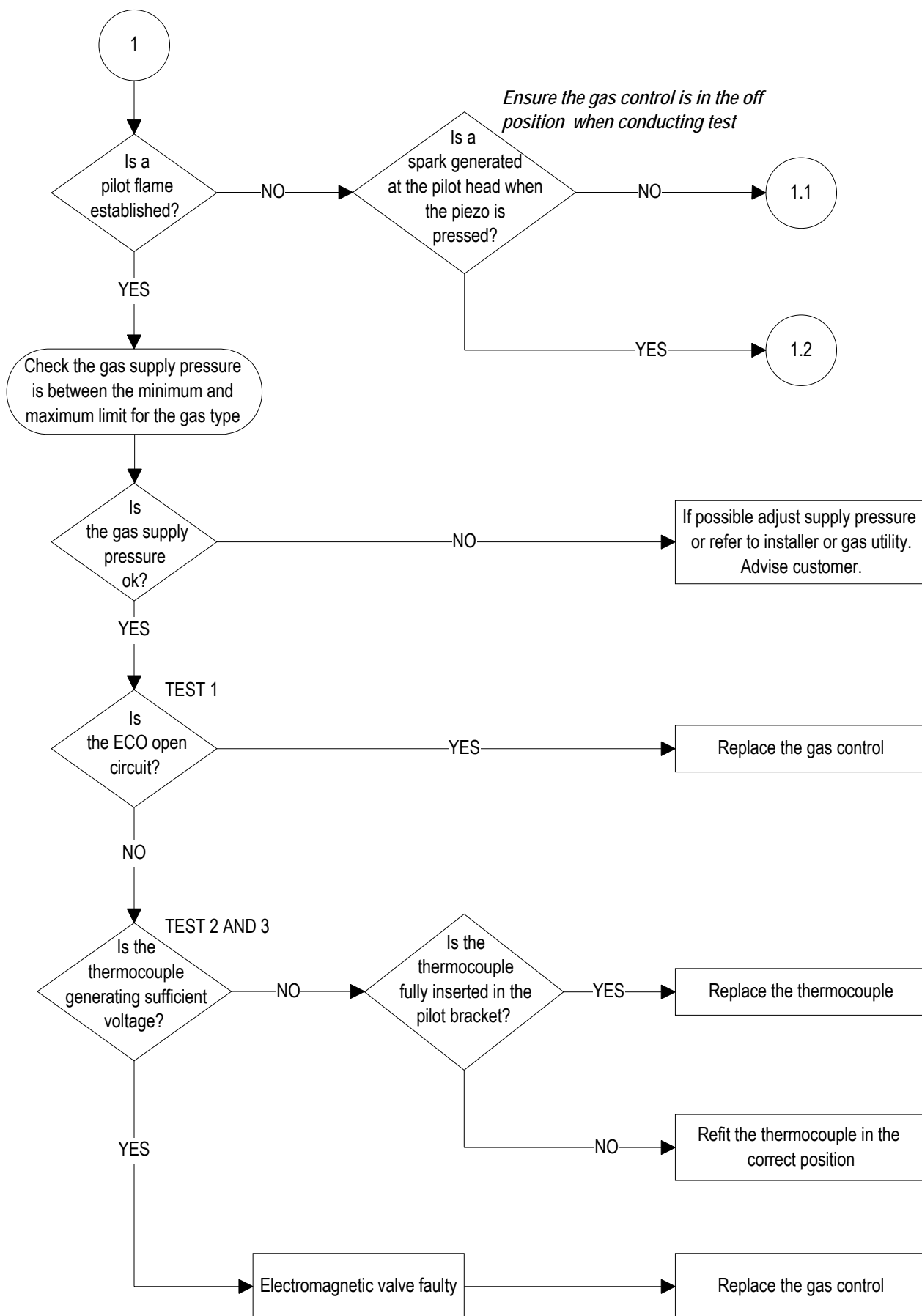
Fault	Chart number	Page
No hot water	Pilot fault	1, 1.1, 1.2
	Main burner fault	2
Leaking water heater	3	13, 14, 15
Insufficient hot water	4	16
Water too hot	5	19
	Stacking	20
	5.1, 5.2	21
Noisy water heater	6	22
Intermittent operation	7	23
		24

Fault Diagnosis Sequence



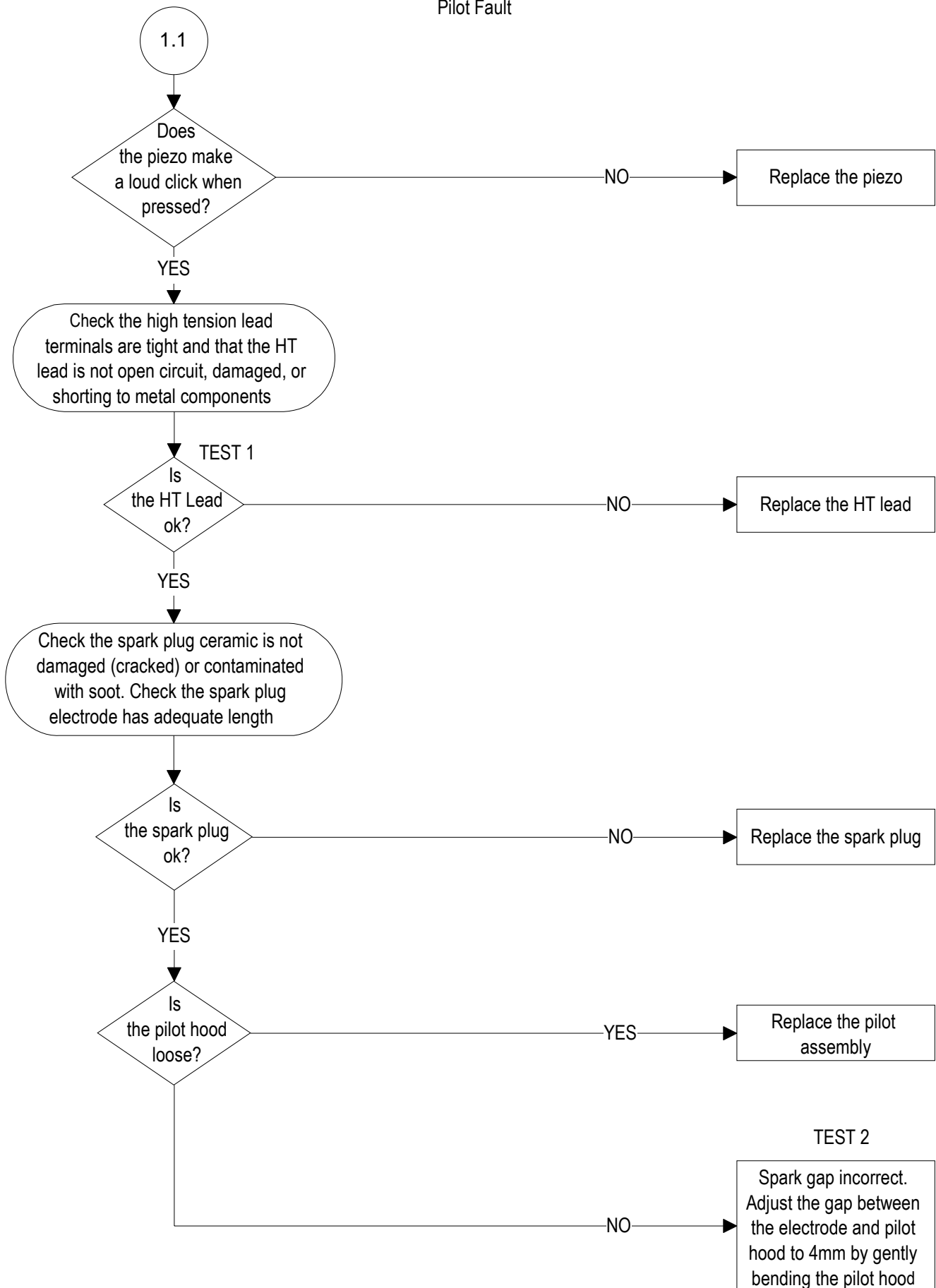
FAULT FINDING – CHART 1

Pilot Fault



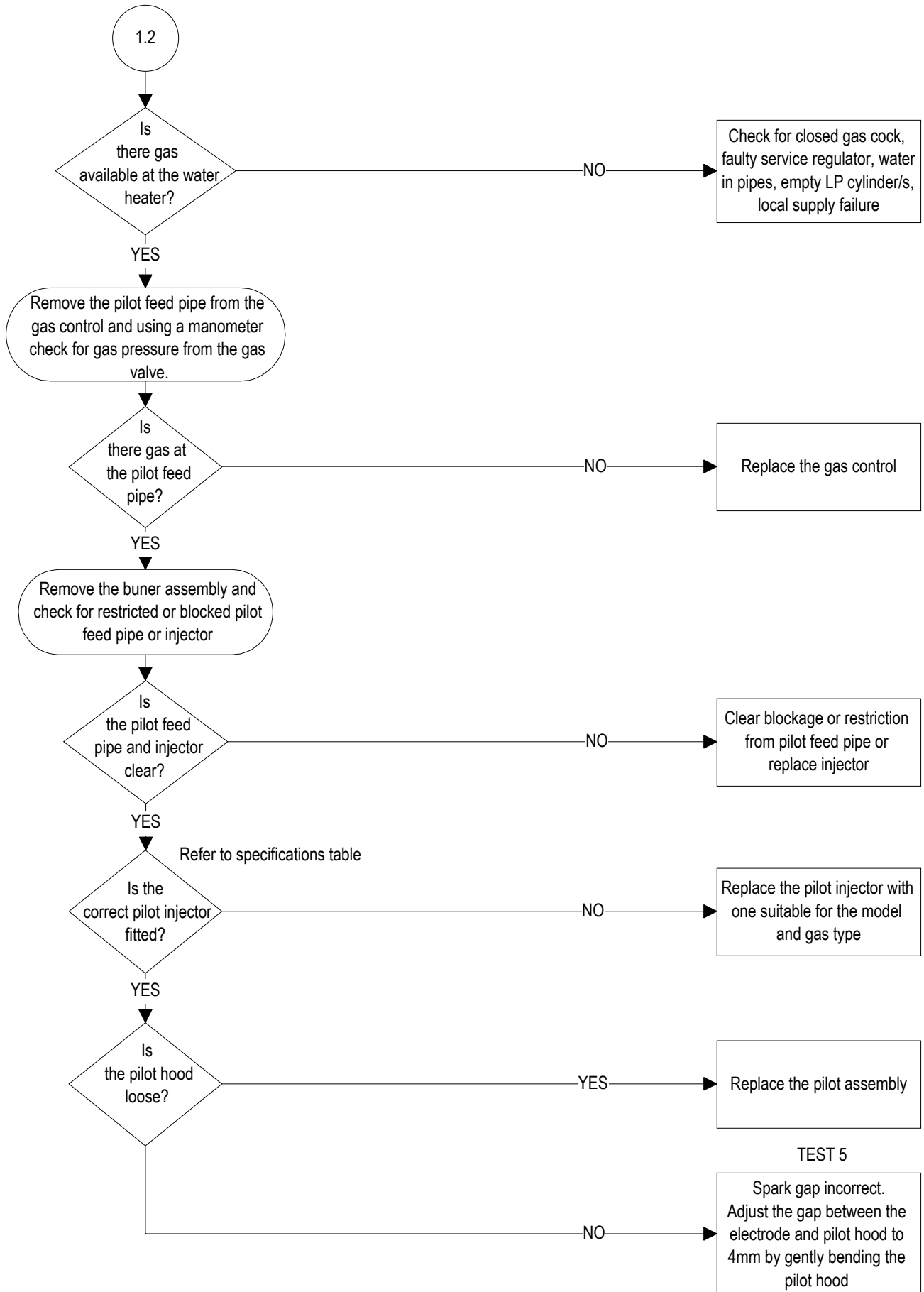
FAULT FINDING – CHART 1.1

Pilot Fault



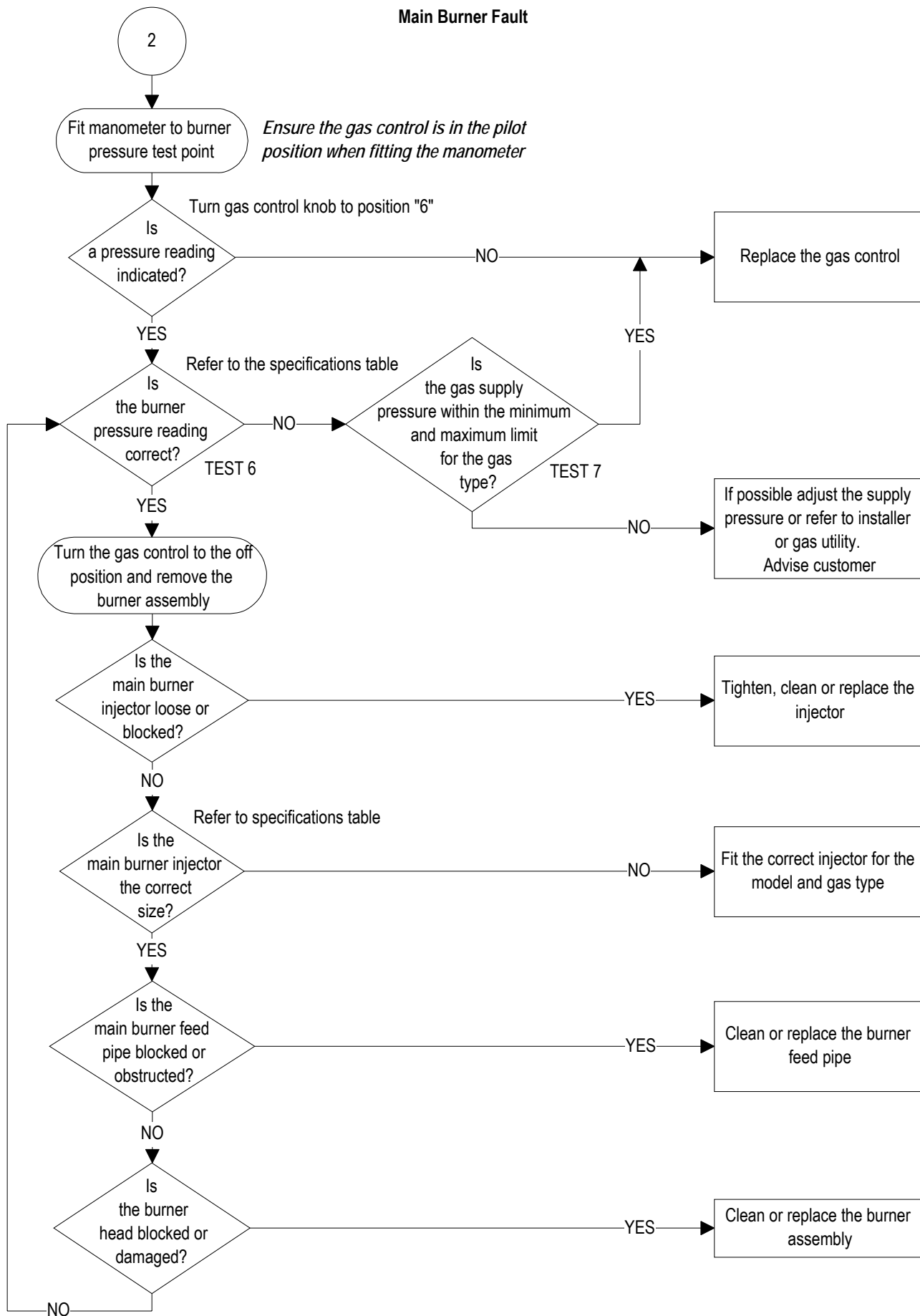
FAULT FINDING – CHART 1.2

Pilot Fault



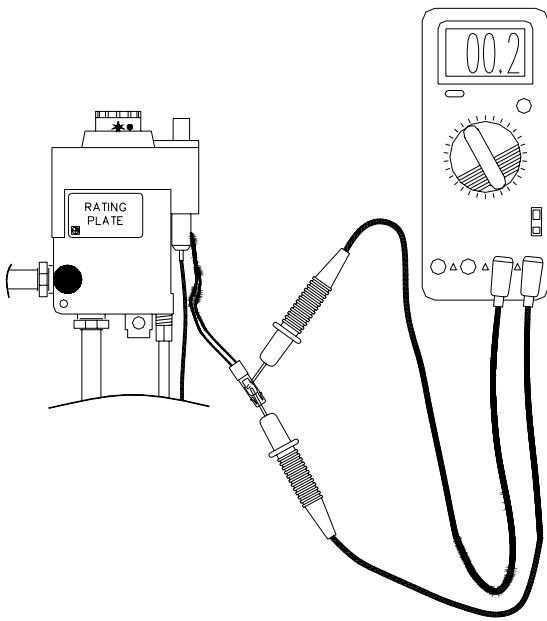
FAULT FINDING – CHART 2

Main Burner Fault



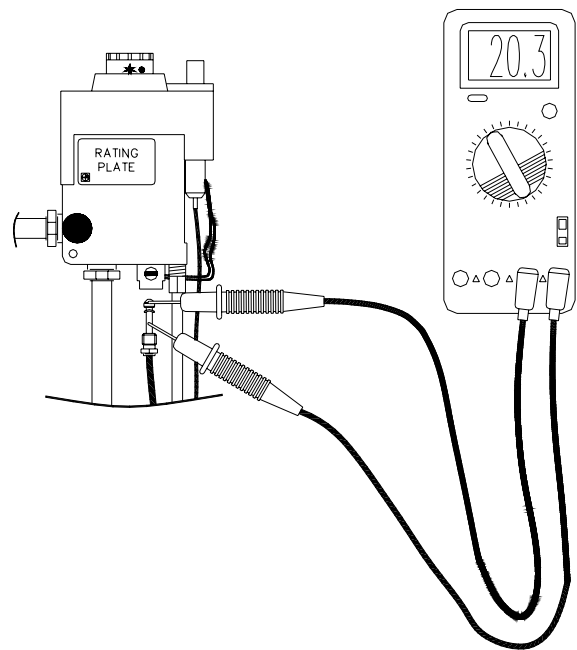
FAULT FINDING – TESTS 1-4

TEST 1



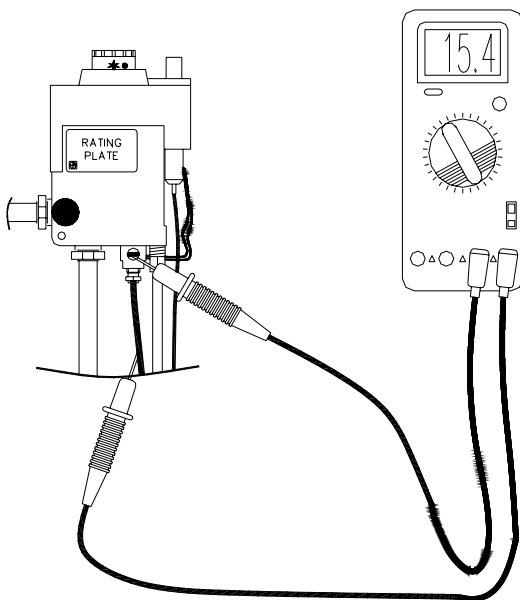
Using a multimeter set on the x1 resistance scale, measure across the terminals of the interrupter block on the gas control. The reading should be 0 ohms (dead short).

TEST 2



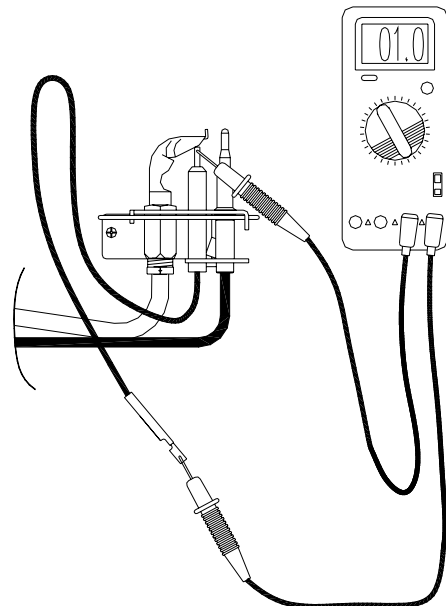
Disconnect the thermocouple from the gas control and using a multimeter set on the DC millivolt scale measure the voltage being generated by the thermocouple. Normal voltage should be approximately 20 millivolts. **Note:** It will be necessary to light the pilot and manually hold the gas control knob down during this test.

TEST 3



With the thermocouple connected to the gas control and using a multimeter set on the DC millivolt scale, measure the voltage between the lower terminal of the interrupter block and the thermocouple sheath. The reading should be approximately 14 millivolts.

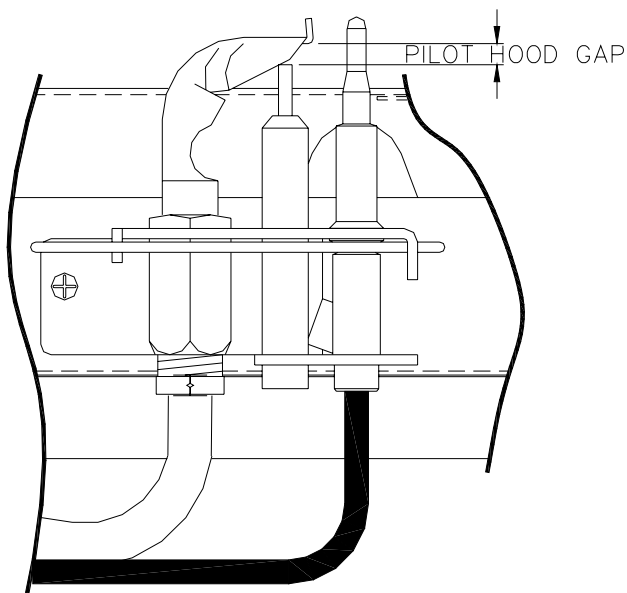
TEST 4



Using a multimeter set on the x1 resistance scale, measure the resistance between the wiring terminal and the electrode tip (ensure the tip is clean). Resistance should be 0 ohms (dead short).

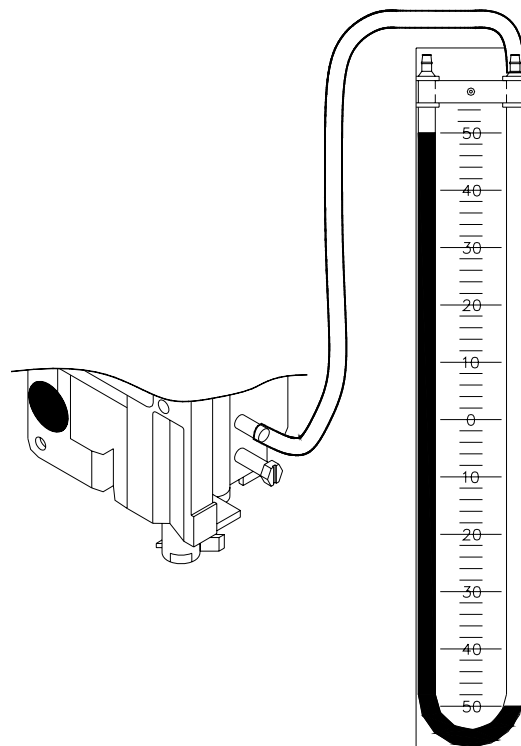
FAULT FINDING – TESTS 5-7

TEST 5



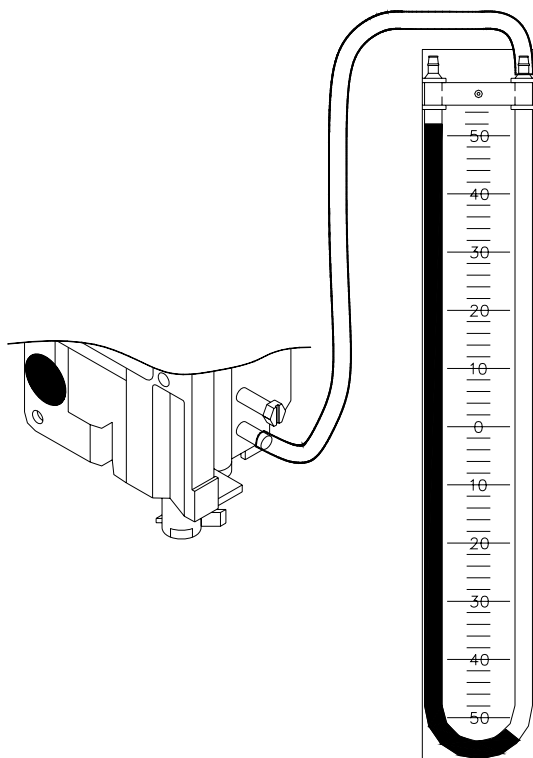
The gap between the pilot hood and electrode tip should be between 4 and 5 mm. Gently bend the pilot hood to adjust the spark gap.

TEST 6



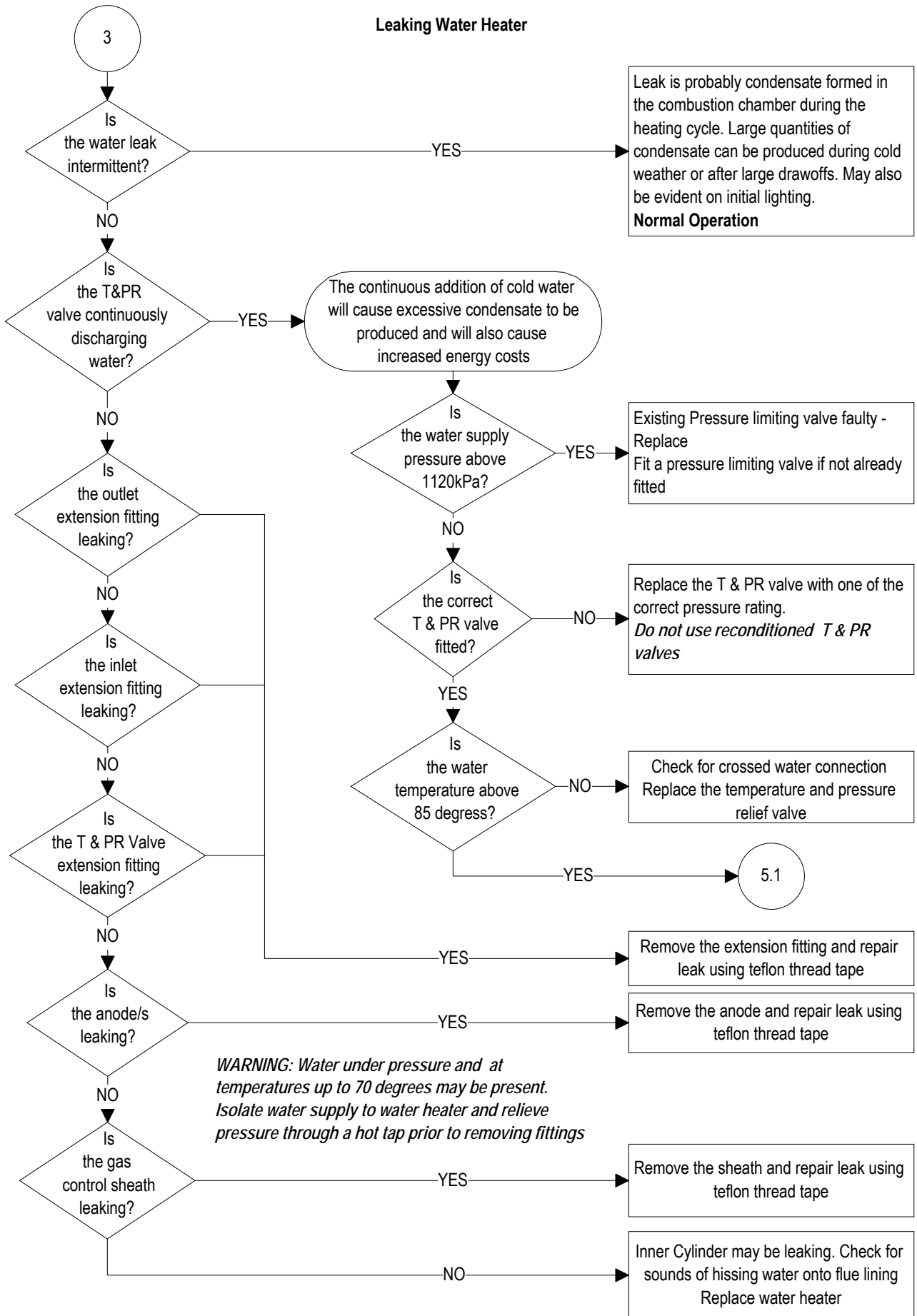
Burner gas pressure reading should be 1kPa for natural gas and 2.75kPa for propane gas +/- 20%

TEST 7

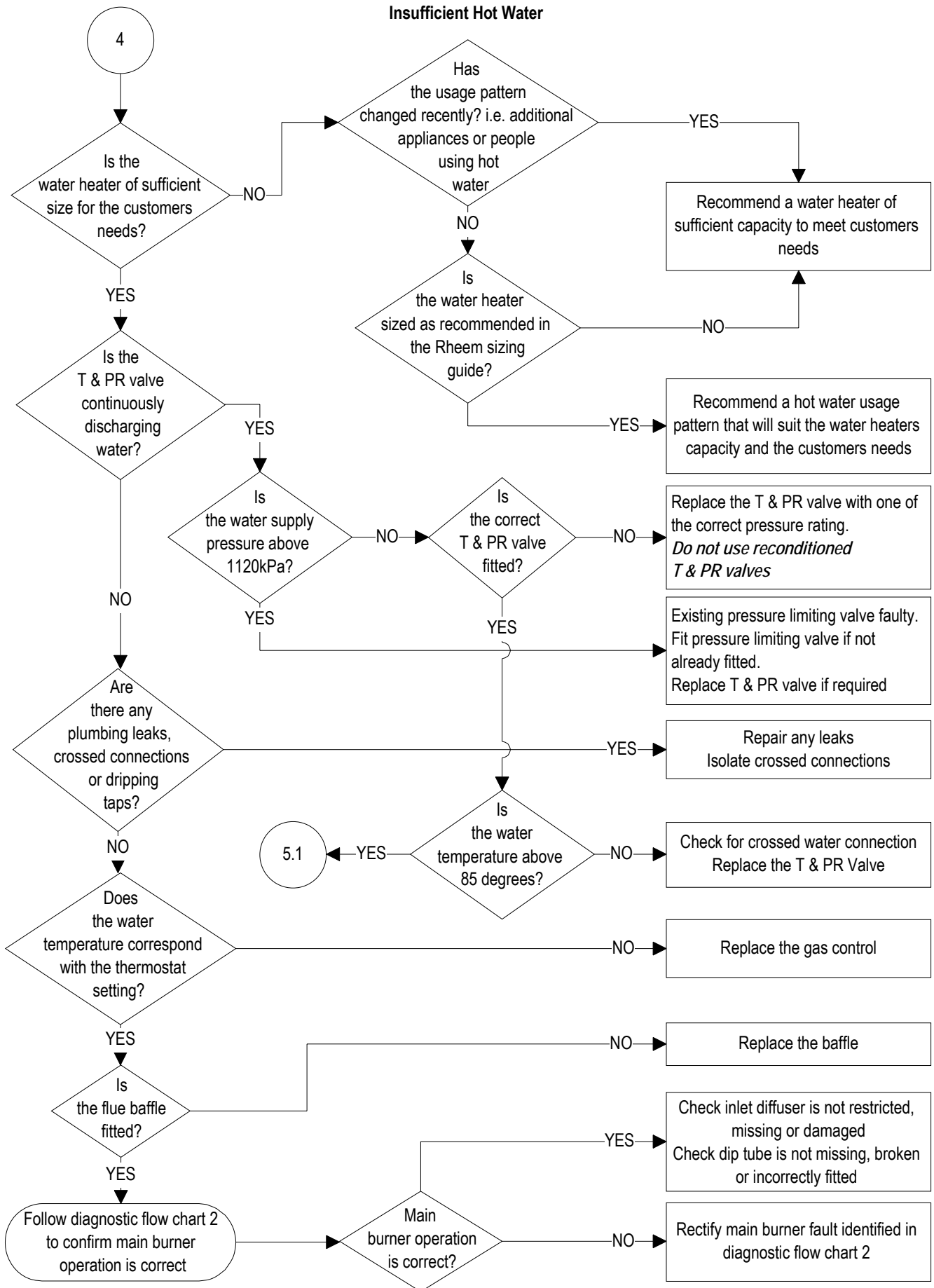


Fit manometer to static pressure test point. With all gas burning appliances lit, including the water heater, the static test point pressure should be a minimum of 1.13kPa for natural gas and 2.75kPa for LP gas. Changing the gas valve or attempting to over-gas the burner pressure will not rectify a fault caused by insufficient line pressure.

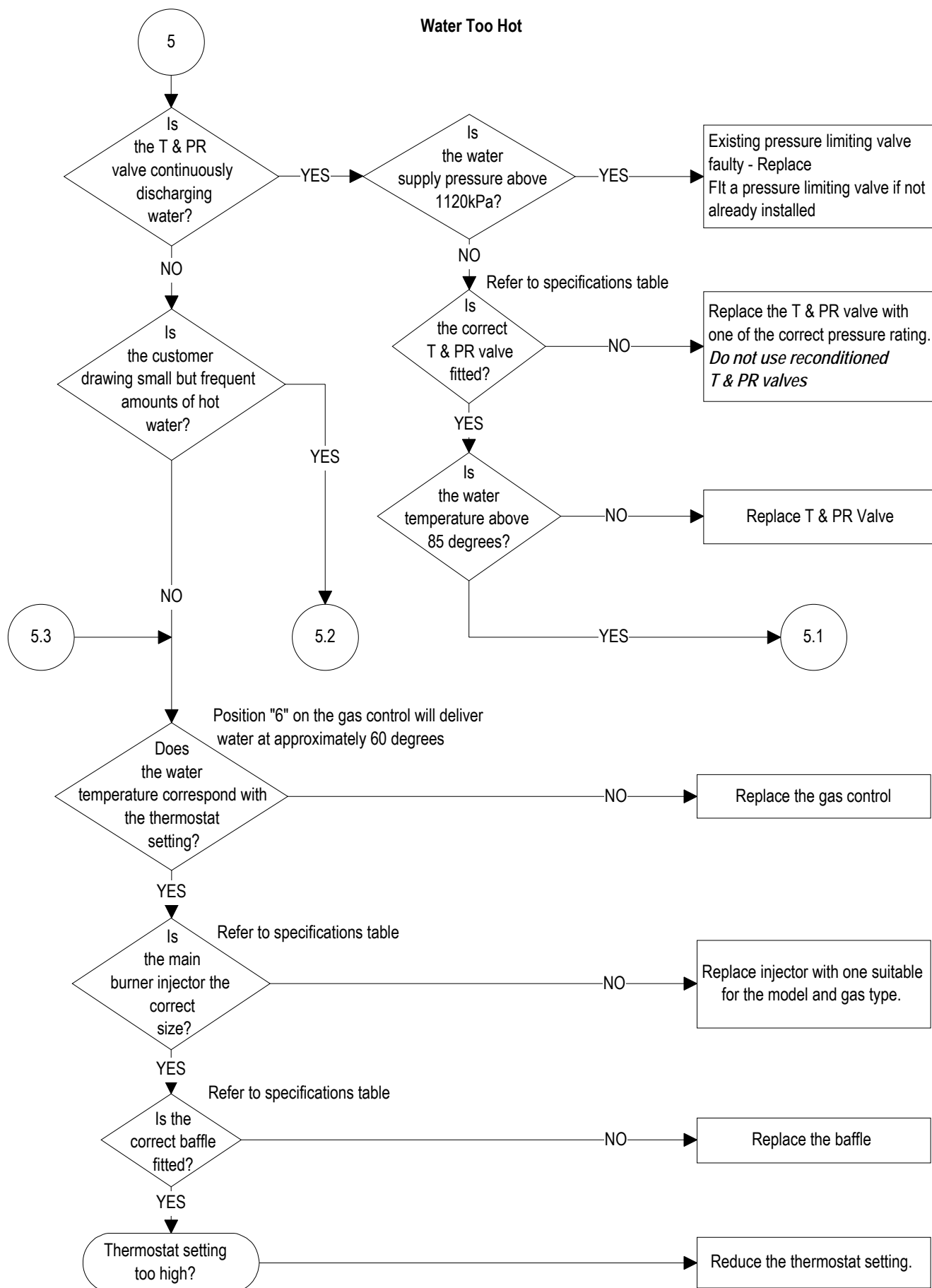
FAULT FINDING – CHART 3



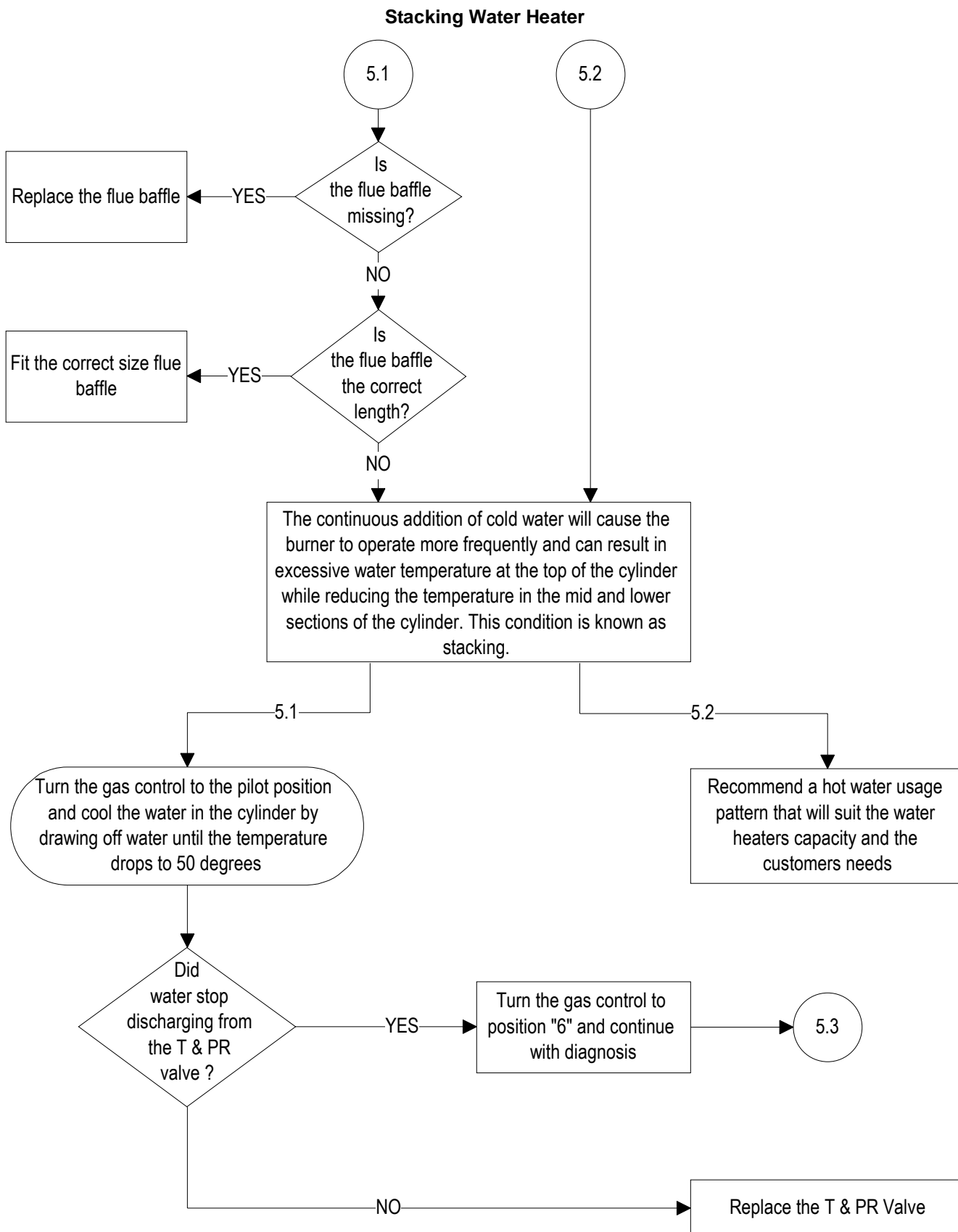
FAULT FINDING - CHART 4



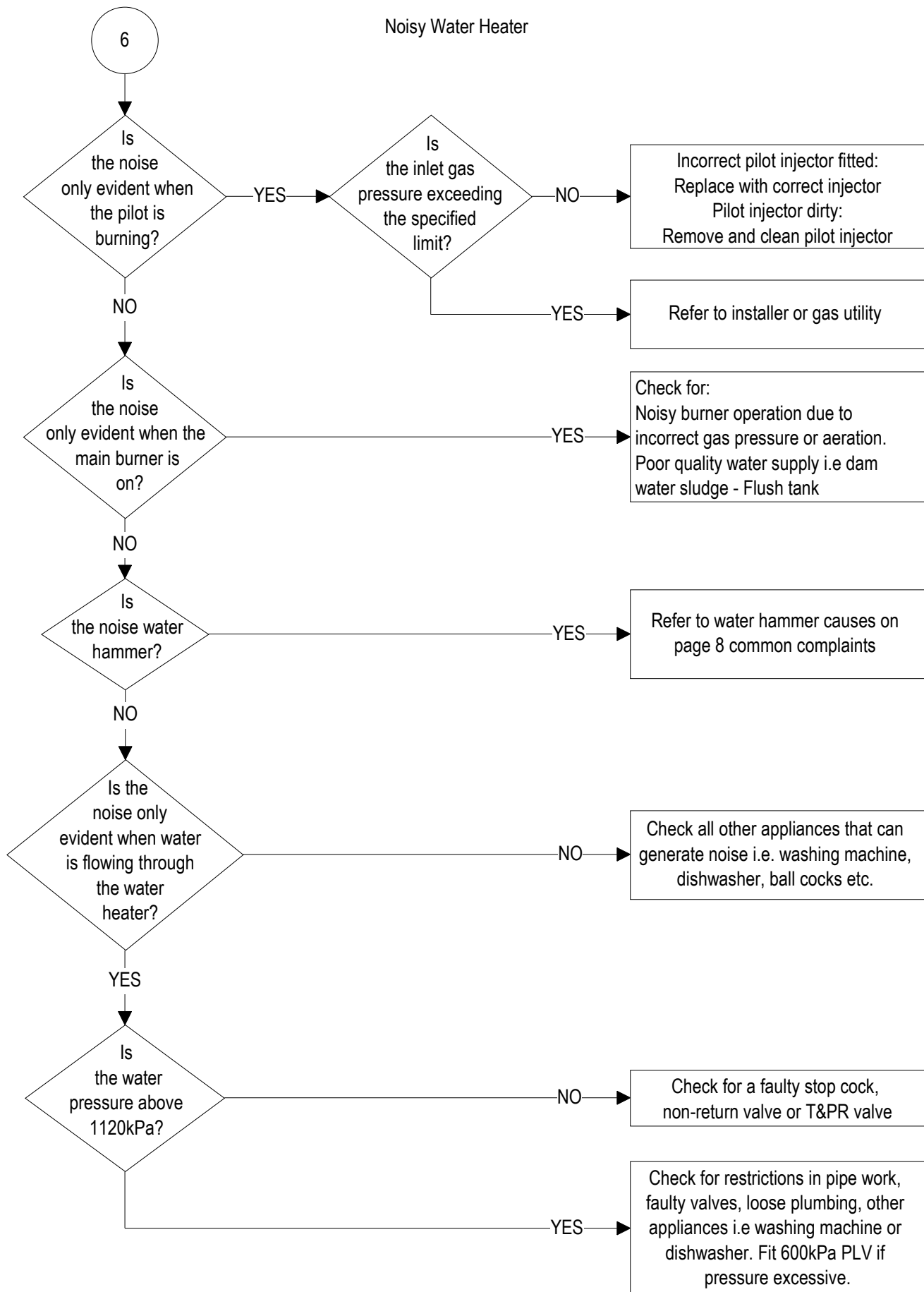
FAULT FINDING – CHART 5



FAULT FINDING – CHART 5.1 & 5.2

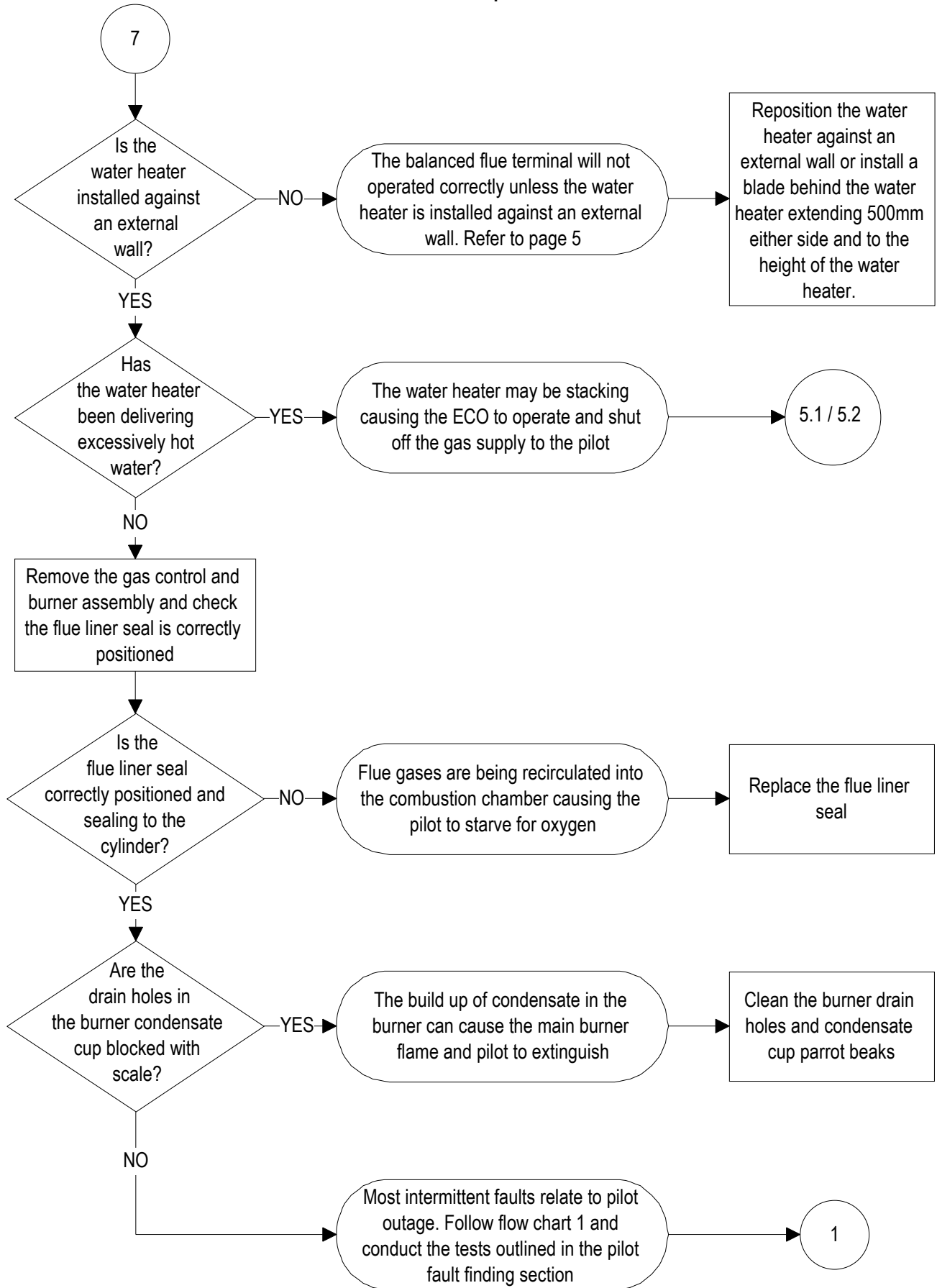


FAULT FINDING – CHART 6




FAULT FINDING – CHART 7

Intermittent Operation




COMPONENT REPLACEMENT

Gas Control Only (Procedure 1)

1. Note the current setting on the gas control.
 2. *Isolate the gas supply.*
 3. Disconnect the gas line at the gas control.
 4. Disconnect the pilot feed pipe, burner feed pipe, igniter lead and thermocouple.
 5. Remove the screw retaining the plastic cover, remove the plastic cover, release the spring clip and withdraw the control from the sheath.
 6. Reassemble in reverse order of above.
 7. Restore gas supply.
 8. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
-  **Test for gas leaks at all unions using soapy water solution**
9. Turn gas control to setting noted in step 1 and refit access cover.


Gas Control And Burner Assembly Removal (Procedure 2)

1. Note the current setting on the gas control.
 2. *Isolate the gas supply.*
 3. Disconnect the gas line at the gas control.
 4. Remove holding screw from the burner-mounting bracket.
 5. Remove the screw retaining the plastic cover and remove the plastic cover and igniter lead.
 6. With a screwdriver, release the spring clip and withdraw the gas control and burner assembly.
 7. Reassemble in reverse order of above.
 8. Restore gas supply.
 9. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
-  **Test for gas leaks at all unions using soapy water solution**
10. Turn gas control to setting noted in step 1 and refit access cover.


Thermocouple (Procedure 3)

1. Remove the gas control and burner assembly. (Refer to procedure 2).
2. Disconnect the thermocouple from the gas control.
3. Using a flat blade screwdriver spread the spring clip retaining the thermocouple head into the pilot assembly bracket and withdraw the thermocouple from the bracket.
4. Reassemble in the reverse order of above. *Note: Due to the design of the bracket a TS thermocouple is the only type that can and must be fitted as a replacement. Refer to page 8.*
5. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
6. Turn gas control to setting noted previously and refit access cover.


Pilot Assembly (Procedure 4)

1. Remove the gas control and burner assembly. (Refer to procedure 2)
2. Disconnect the pilot feed pipe and thermocouple from the gas control and disconnect the high-tension lead from the piezo igniter.
3. Remove the screw retaining the pilot assembly to the burner air channel.
4. Reassemble in the reverse order of above.
5. Restore gas supply.
6. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
 **Test for gas leaks using soapy water solution after reconnecting gas supply.**
7. Turn gas control to setting noted previously and refit access cover.

Pilot Injector (Procedure 5)

1. Remove the gas control and burner assembly. (Refer to procedure 2)
2. Disconnect the pilot pipe at the pilot assembly and draw the pilot feed pipe from the pilot assembly. *Note: The injector is clipped to the end of the pilot feed pipe and will be removed as the pipe is drawn from the pilot assembly.*
3. Slide the replacement injector over the end of the pilot feed pipe, ensuring the injector skirt slips over and engages the formed end of the pilot feed pipe, prior to inserting the pilot feed pipe into the pilot assembly. *Do not slide the injector into the pilot assembly and insert the feed pipe after.*
4. Carefully insert the injector and pilot feed pipe as an assembly into the pilot assembly, ensuring the injector does not disengage from the pilot feed pipe, and tighten the retaining nut.
5. Restore gas supply.
6. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
 **Test for gas leaks using soapy water solution after reconnecting gas supply.**
7. Turn gas control to setting noted previously and refit access cover.

Main Burner Injector (Procedure 6)

1. Remove the gas control and burner assembly. (Refer to procedure 2)
2. Disconnect the burner feed pipe at the gas control.
3. Remove the retaining clip holding the burner feed pipe to the burner air duct.
4. Hinge the burner feed pipe down to disengage the tongue from the end of the burner air duct.
5. Unscrew the injector from the burner feed pipe.
6. Reassemble in the reverse order of above.
7. Restore gas supply.
8. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
 **Test for gas leaks using soapy water solution after reconnecting gas supply.**
9. Turn gas control to setting noted previously and refit access cover.

Anodes (Procedure 7)


1. *Remove the access cover and turn gas control knob to pilot position.* Note number to which knob was set.
2. *Isolate water supply at the stopcock.*
3. *Relieve pressure through a hot tap or the temperature and pressure relief valve.*
4. Remove holding screw from recess in rear of jacket top.
5. Remove jacket top - gently lever top from jacket.
6. Remove flue liner lid using handle provided. *Warning: The flue liner lid may be hot, use protective gloves to prevent burns.*
7. Using a 27mm tube or socket spanner remove anodes.
8. Apply thread seal tape to anodes, refit and tighten.
9. Restore water supply and test for leaks.
10. Reapply protective coating (Stove Black or similar) around the anode head to prevent corrosion from flue gases.
11. Apply new seal (part number 225502) to flue liner lid and replace lid.
12. Refit jacket top and screw.
13. Turn gas control to previous setting and refit access cover.

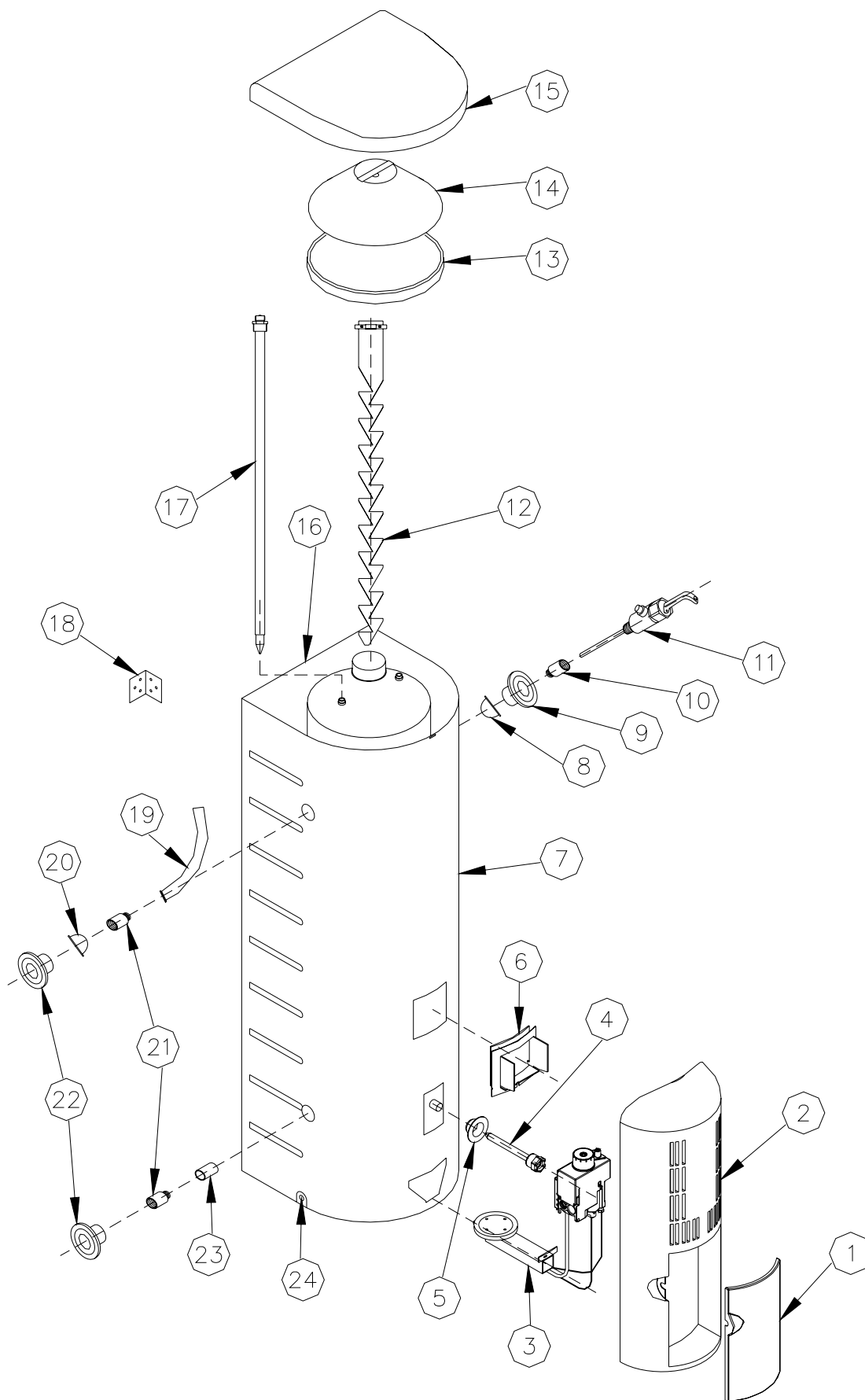
Cleaning Or Replacing Flue Baffle (Procedure 8)

1. Remove the access cover and turn gas control knob to the off position. Note number to which knob was set.
2. Remove holding screw from recess in rear of jacket top.
3. Remove jacket top - gently lever top from jacket.
4. Remove flue liner lid using handle provided.
5. Remove flue baffle.
6. Apply new seal (part number 225502) to flue liner lid before replacing lid.
7. Reassemble in reverse order of above.
8. Refit jacket top and screw.
9. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
10. Turn gas control to setting noted in step 1 and refit access cover.

Flue Terminal Assembly (Procedure 9)

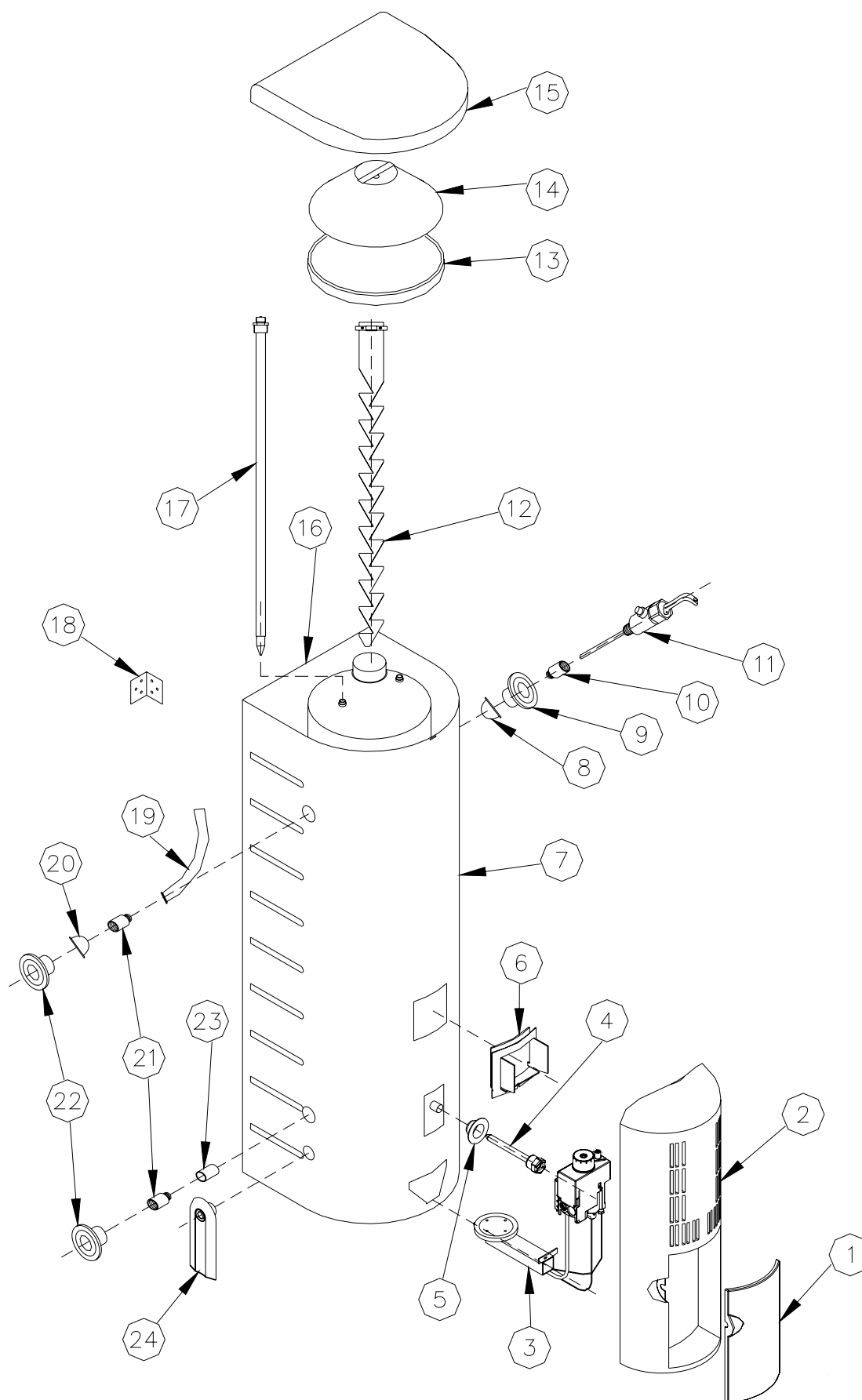
It may be necessary to alter the gas supply pipe if replacing the flue terminal on models manufactured prior to June 2001 (see page 5).

1. *Isolate gas supply at gas cock.*
2. Remove access cover.
3. Disconnect gas line between gas cock and gas control.
4. Remove the 3 holding screws from the flue terminal assembly.
5. Gently remove assembly from the jacket.
6. Reassemble in reverse order of above.
7. Relight the pilot. *Lighting instructions are provided on the access door, follow the instructions carefully.*
8.  *Test for gas leaks using soapy water solution after reconnecting gas supply.*
8. Turn gas control to setting noted previously and refit access cover.



REPLACEMENT PARTS LIST (MODELS MANUFACTURED UP TO 30/08/02)

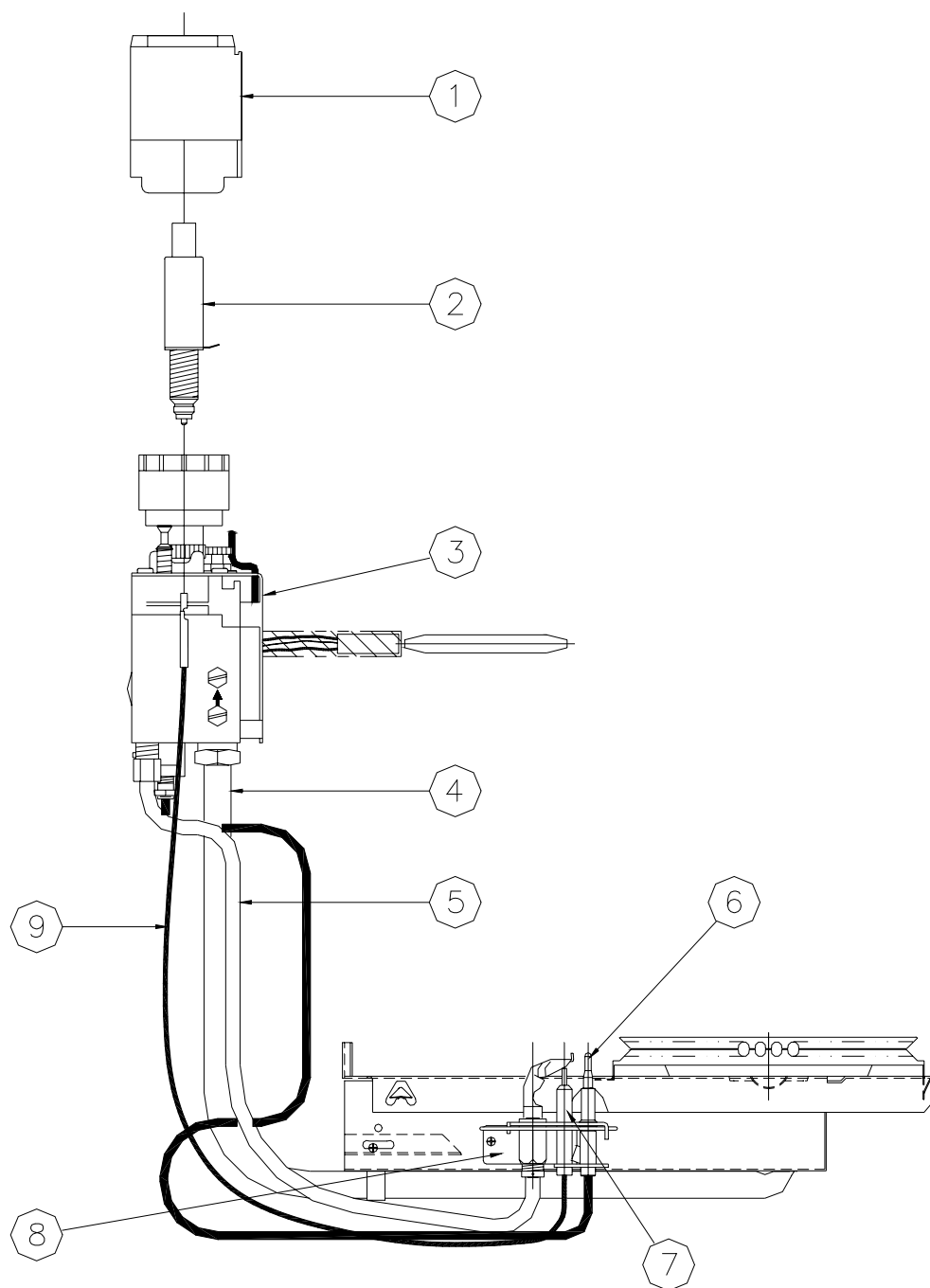
Item	Description	Part Number
1	Access Cover	101308
2	Flue Terminal	104755
3	Burner Assembly	See page 32
4	Adapter (Sheath)	079426
5	Flue Liner Seal	221264
6	Flue Liner Flange	104754
7	Jacket - 850330	104140
	Jacket - 850360	104141
8	Spacer 26.6mm	104039
9	Pipe Seal – T&PR valve	221260-1
10	Extension Fitting	088037
11	T & PR Valve	220610
12	Flue Baffle (850330)	071853
	Flue Baffle (850360)	071855
13	Seal – Flue Liner Top	225502
14	Flue Liner Top	104037
15	Jacket Top	101213
16	Back Panel 850330	104313
	Back Panel 850360	104314
17	Anode (Black) 850330	221914
	Anode (Blue) 850330	221924
	Anode (Black) 850360	221915
	Anode (Blue) 850360	221925
18	Wall Bracket Kit	106110
19	Dip-tube	225601
20	Spacer 31.3mm	104040
21	Extension Fitting	088038
22	Pipe Seal – Inlet & Outlet	221213-1
23	Inlet Diffuser	220901
24	Condensate Drain	220551
NI	Foot	101402
	Base Panel	104023
	Pilot shield	143902



REPLACEMENT PARTS LIST (MODELS MANUFACTURED AFTER 30/08/02)

Item	Description	Part Number
1	Access Cover	101308
2	Flue Terminal	104755
3	Burner Assembly	See page 32
4	Adapter (Sheath)	079426
5	Flue Liner Seal	221264
6	Flue Liner Flange	104754
7	Jacket - 850330	104147
	Jacket - 850360	104148
8	Spacer 26.6mm	104039
9	Pipe Seal – T&PR valve	221260-1
10	Extension Fitting	088037
11	T & PR Valve	220610
12	Flue Baffle (850330)	071853
	Flue Baffle (850360)	071855
13	Seal – Flue Liner Top	225502
14	Flue Liner Top	104037
15	Jacket Top	101213
16	Back Panel 850330	104313
	Back Panel 850360	104314
17	Anode (Black) 850330	221914
	Anode (Blue) 850330	221924
	Anode (Black) 850360	221915
	Anode (Blue) 850360	221925
18	Wall Bracket Kit	106110
19	Dip-tube	225601
20	Spacer 31.3mm	104040
21	Extension Fitting	088038
22	Pipe Seal – Inlet & Outlet	221213-1
23	Inlet Diffuser	220901
24	Condensate Drain	104044
NI	Foot	101402
	Base Panel	104023
	Pilot Shield	143902

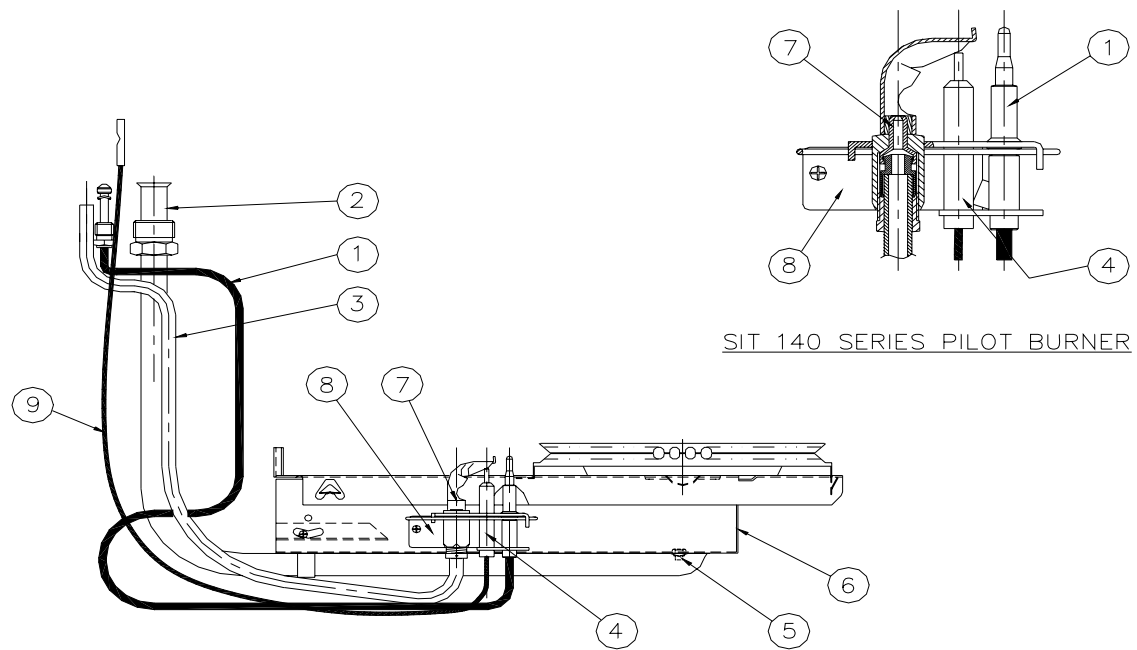
BURNER ASSEMBLY EXPODED VIEW



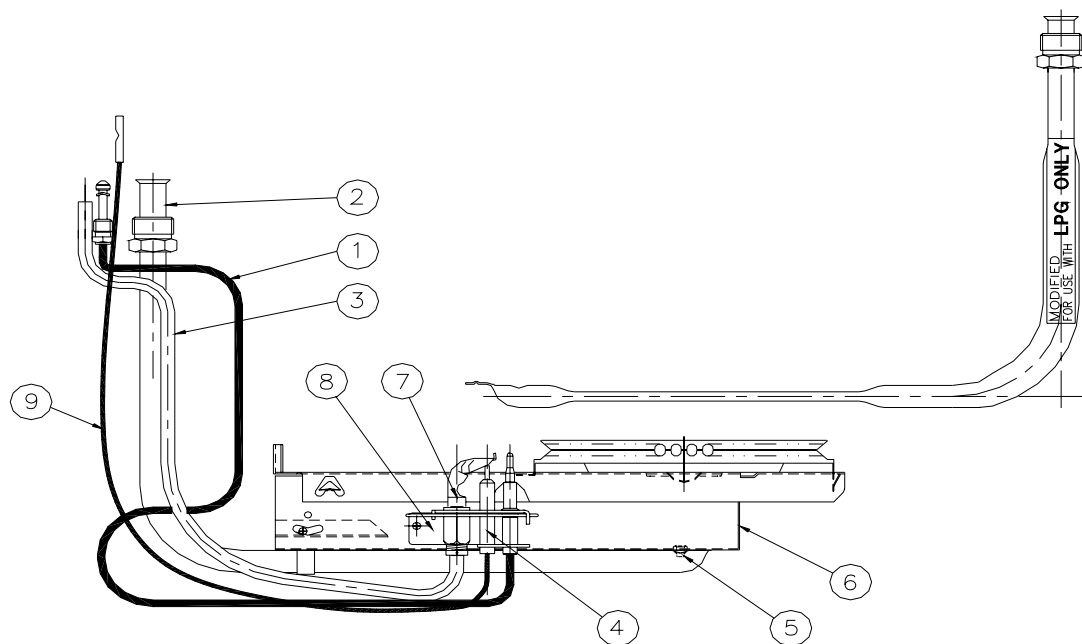
REPLACEMENT PARTS LIST

ITEM	COMPONENT	PART No	ITEM	COMPONENT	PART No
1	Top Cover – Old Style	890176	5	Pilot Feed Pipe S.I.T.	071507
	Top Cover – New Style	890263	6	Thermocouple TS S.I.T.	071428
2	Piezo Igniter	890202	7/9	Spark Plug & Lead	890175
3	Gas Control Eurosit NG	079421	8	Pilot Assembly NG TS 5ST S27	070959
	Gas Control Eurosit LPG	079424		Pilot Assembly LPG TS 5ST S18	070953
4	Burner Feed Pipe – See next page		NI	Lighting Instructions (Outdoor)	121024

BURNER EXPLODED VIEW



Natural Gas



LP Gas

REPLACEMENT PARTS LIST

ITEM	COMPONENT	PART No	ITEM	COMPONENT	PART No
1	Thermocouple TS S.I.T.	071428	6	Burner Assembly NG	070200
2	Burner Feed Pipe NG	070801	7	Burner Assembly LP	070199
	Burner Feed Pipe LPG	070800		Pilot Injector NG	890181
3	Pilot Feed Pipe S.I.T.	071507	8	Pilot Injector LP	890197
4/9	Spark Plug & Lead	890175		Pilot Assembly NG TS 5ST S27	070959
5	Main Injector NG	073369	NI	Pilot Assembly LPG TS 5ST S18	070953
	Main Injector LP	073371		Olive & Ferrule Pilot Feed Pipe	890174

NI – Not Illustrated

GAS TYPE CONVERSION PROCEDURE



NOTE: Stellar is approved for Natural and LP gas types only. Conversions to butane or towns gas are illegal.



For warehouse gas type conversions the burner operation and gas tightness testing must be completed by dry firing the water heater or fully assembled burner/gas control assembly. Do NOT leave the main burner on for more than 30 seconds if dry firing. Where gas is unavailable for testing gas type conversions must NOT be conducted.

1. Isolate gas supply to the water heater and remove the access cover
2. Disconnect gas supply pipe and remove the union or elbow from the gas control.
3. Disconnect the following from the gas control -
 - a. Piezo igniter lead.
 - b. Pilot feed pipe.
 - c. Thermocouple.
 - d. Burner feed pipe.
5. Remove the holding screw from the burner mounting bracket.
6. Remove the burner assembly.
7. Remove the gas control top cover.
8. Remove the gas control from the sheath by releasing the spring clip.
9. Change pilot injector to suit gas type. **Ensure gas tight joints.**
10. Change burner feed pipe and main burner injector to suit gas type. **Ensure gas tight joints.**



NOTE: The burner-connecting pipe must be changed from a fully rounded type suitable for NG to partially flattened type when converting to LPG. The reverse applies when converting from LPG to NG.

11. Refit burner assembly **ensuring joints are gas tight.**
12. Fit replacement gas control and lock into place on the sheath.
13. Reconnect the following to the gas control –
 - a. Piezo igniter lead.
 - b. Pilot feed pipe.
 - c. Thermocouple.
 - d. Burner feed pipe.
14. Reconnect and restore the gas supply. **Ensure gas tight joint.**
15. Light pilot. **Ensure lighting instructions, provided on the access door, are carefully followed.**
16. Test operation of main burner and **test for gas leaks using soapy water solution.**
17. Check flame quality and adjust aeration shutter if necessary.
18. **Change rating label details and fit new gas type labels.**
19. Refit access cover.

GAS CONVERSION REPLACEMENT PARTS LIST

COMPONENT		COMPONENT PART NUMBER	
		NATURAL GAS	LP GAS
Gas Control		079421	079424
Burner Feed Pipe		070801	070800
Main Burner Injector	Size (mm)	2.90	1.80
	Part Number	073369	073371
Pilot Injector	Size (mm)	0.27	0.18
	Part Number	890181	890197
Aeration Shutter Opening		Fully Open	Fully Open
Test Point Pressure (kPa)		1.0	2.75
Gas Approval Label		121901	121901
Gas Type Label		121802	121805
Maximum Gas Supply Pressure (kPa)		3.5	3.5
Minimum Gas Supply Pressure (kPa)		1.13	2.75
Hourly Gas Consumption MJ		42	42

RHEEM WATER HEATER WARRANTY (EXCLUDING SOLAR) - (AUSTRALIA AND NEW ZEALAND ONLY)

Rheem Australia will:

- Repair, or if necessary replace any Rheem water heater or;
- Replace any failed component or, if necessary, arrange the installation of a new water heater for the period shown in the following table and terms and conditions.

Component	Installation	Model	Warranty Period (since installation)	Warranty
All Components	All installations	All models	First 12 months	New component or water heater (at Rheem's sole discretion) free of charge, including labour**
Inner Cylinder And Stainless Steel Super Flue	Water heater installed in a single-family domestic premises with a thermostat setting below 76°C	Rheemglas	First 3 years	New water heater free of charge, including labour**
			Years 4 & 5	New water heater free of charge, with installation costs the responsibility of the owner**
		Optima, Heavy Duty and Stellar	First 5 years	New water heater free of charge, including labour**
			Years 6 - 10	New water heater free of charge, with installation costs the responsibility of the owner**
	Water heater installed in any other than a single domestic premises with a thermostat setting below 76°C	Rheemglas	First 12 months	New water heater free of charge, including labour**
			Years 2 & 3	New water heater free of charge, with installation costs the responsibility of the owner**
		Optima, Heavy Duty and Stellar	First 12 months	New water heater free of charge, including labour**
			Years 2 - 5	New water heater free of charge, with installation costs the responsibility of the owner**

Notes

**Refer to item 4 of warranty conditions

WARRANTY CONDITIONS

- This warranty is applicable only to water heaters manufactured from 1 January 1995
- The water heater must be installed in accordance with the Rheem Water Heater installation instructions, supplied with the water heater, and in accordance with all relevant statutory and local requirements of the state in which the water heater is to be installed.
- Where a failed component or water heater is replaced under warranty, the balance of the original warranty period will remain effective. The replaced part or water heater does not carry a new warranty.
- Where the water heater is installed outside the boundaries of a metropolitan area as defined by Rheem or further than 25 km from a regional Rheem Service Branch Office, or Accredited Service Agent, the cost of transport, insurance and travelling costs between the nearest Rheem Service Accredited Service Agent's premises and the installed site shall be the owner's responsibility.
- The warranty only applies to the water heater and original or genuine (company) component replacement parts and therefore does not cover any plumbing or electrical parts supplied by the installer and not an integral part of the water heater, e.g. pressure limiting valve, stop cock, non-return valve, electrical switches, pumps, or fuse.
- The water heater must be sized to supply the hot water demand in accordance with the guidelines in Rheem Water Heater literature.

WARRANTY EXCLUSIONS

- REPAIR AND REPLACEMENT WORK WILL BE CARRIED OUT AS SET OUT IN THE RHEEM WATER HEATER WARRANTY ABOVE, BUT THE FOLLOWING EXCLUSIONS MAY CAUSE THE RHEEM WATER HEATER WARRANTY TO BECOME VOID, AND MAY INCUR A SERVICE CHARGE AND COST OF PARTS (IF NECESSARY)
 - Accidental damage to the water heater or any component including: acts of God; failure due to misuse; incorrect installation; attempts to repair the water heater other than by a Rheem Service Accredited Service Agent, or the Rheem Service Department.
 - Where it is found that there is nothing wrong with the water heater; where the complaint is related to excessive discharge from the temperature and pressure relief valve due to high water pressure; where there is no flow of water due to faulty plumbing; where water leaks are related to plumbing and not the water heater or water heater components; where there is a failure of gas, electricity or water supplies; where the supply of gas, electricity or water does not comply with relevant codes or acts.
 - Where the water heater or water heater component has failed directly or indirectly as a result of excessive water pressure, temperature and/or thermal input or corrosive atmosphere.
 - Where the water heater is located in a position that does not comply with the Rheem water heater installation instructions or relevant statutory requirements, causing the need for major dismantling or removal of cupboards, doors or walls, or use of special equipment to bring the water heater to floor level
 - Repairs to the water heater due to scale formation in the waterways when the water heater has been connected to a harmful water supply as outlined in the Owners Guide.
- SUBJECT TO ANY STATUTORY PROVISIONS TO THE CONTRARY, THIS WARRANTY EXCLUDES ANY AND ALL CLAIMS FOR DAMAGE TO FURNITURE, WALLS, FOUNDATIONS OR ANY OTHER CONSEQUENTIAL LOSS EITHER DIRECTLY OR INDIRECTLY DUE TO LEAKAGE FROM THE WATER HEATER.

In addition to this warranty, the Trade Practices Act 1974 and similar laws in each State and Territory provide the owner under certain conditions with minimum statutory rights in relation to your Rheem water heater. This warranty must be read subject to that legislation and nothing in this warranty has the effect of excluding, restricting or modifying those rights.

RHEEM AUSTRALIA PTY LTD
ABN 21 098 823 511

FOR SERVICE TELEPHONE
131031 AUSTRALIA
0800 657 335 NEW ZEALAND

NOTE: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences which may arise as a result of its application.

DOCUMENT REVISION HISTORY

Title:	Rheem Stellar	Document Number:	TM009
--------	---------------	------------------	-------

Revision	Details of change	D.O.I.
A	Service Instructions issued for 850 series Rheem Stellar	14/08/2001
B	All references to Southcorp replaced with Rheem	30/07/2002
C	Manual updated to include changes to jacket and injector sizes	9/05/2003
D	Gas Conversion Procedure Updated	14/09/2007